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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics

TOMATO TRENDS BY AREAS

With Particular Reference to Northeastern States

U. S. Department of Agriculture

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SUMMARY

Tomatoes are the most valuable commercial truck crop in the United States. They are grown commercially in almost all parts of the country but production is concentrated in sections of the Northeastern, North Central, and Southern States, and in California, Utah and Colorado. Tomatoes grown in Northern areas are used mostly for processing while those produced in the South are mostly for fresh use. More tomatoes are used for processing than for fresh market.

Production in almost all areas increased greatly during the last few decades. As new uses and new demand for tomato products developed, production for processing increased, particularly in California and in the North Central area. Production of fresh tomatoes expanded most in Southern and California winter-producing areas as a result of the improvement of marketing facilities. Tomato production also increased considerably in the Northeast with greatest increases occurring in New York and Pennsylvania. Production in Delaware decreased greatly.

Prices for tomatoes were considerably lower in the decade of the 1930's than in the decade of the 1920's. Prices for fresh tomatoes in summer-producing areas such as the Northeast ware particularly low. Prices for processing tomatoes in all areas declined about the same. Low prices were caused mostly by a lower level of general prices, decreased consumer purchasing power, and increased supplies. The effect of increased supplies of fresh tomatoes on prices of fresh tomatoes was most during the season in which the increased supply was marketed. The chief cause of lower prices in the decade of the Thirties was depressed business conditions.

In the coming decade, demand and prices for tomatoes are expected to be higher. Business activity is expected to be at high levels for the duration of the defense program, Lend Lease purchases of tomatoes will be considerable, population is expected to increase, and dietary habits are expected to favor consumption of tomatoes. The North Central area appears to be best equipped to produce the greater quantities of processing tomatoes that may be needed for defense, although all areas may increase production with higher prices. In the longer run, production of fresh tomatoes will probably expand with favorable prices, the greatest increases taking place in the South and in California. The prospect for the Mid-Southern and Utah-Colorado areas is less favorable, although poor alternatives may force continued production. Production for processing may be expected to increase, if prices are favorable, particularly in the North Central and California areas. Mid-Southern production appears to have a less favorable prospect. In the Northeast, fresh production probably will be maintained with little competition from other areas, but processing production may be expected to experience sharper competition from other areas.

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TOMATO TRENDS BY AREAS WITH PARTICULAR REFERENCE TO NORTHEASTERN STATES

By William Kling, Assistant Agricultural Economist

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INTRODUCTION

Tomatoes are the most valuable commercial truck crop in the United States. Farm sales of tomatoes for fresh market shipment and for processing amounted, in 1939, to 58 million dollars, or 22 percent of total farm sales of 22 commercial truck crops (fig. 1). In the 12 Northeastern States, they represented an even larger proportion of total sales of truck crops. The proportion of sales in 1939 was 27 percent, or 14 million dollars (fig. 2).

Acreage and production of tomatoes have increased greatly in the last few decades. New producing areas have been developed and production has been expanded in many old producing areas. At the same time new commercial uses for tomatoes have been developed and the winter-season demand for fresh tomatoes has been more fully supplied.

These upward trends in production and consumption have not been accomplished without disturbing the production and marketing situation for tomatoes in the various producing areas in this country. Both yields per acre and farm prices have been affected. In this period of rapid change, tomatoes have moved into a new position relative to alternative crops that may be produced in the different areas and farmers have found it necessary to consider changes in the organization of their systems of farming.

Tomato growers in the Northeastern States especially have felt the impact of recent developments in the industry. This report on trends in the industry was prepared primarily in response to the interest of Northeastern growers in an analysis of the past and prospective trends in production and farm prices of tomatoes by regions. But an analysis of production and price trends by regions is only a part of the background necessary for an appraisal of the farmer's problem of deciding what place he should give to tomatoes in his system of farming. Similar analyses of alternative enterprises, especially substitutable truck crops, are needed as well as up-to-date information on quantities and prices of labor and materials which the farmer must bring together on the land for the production of tomatoes and alternative crops.

The final synthesis of such data is illustrated in a series of reports on "Farm Management Problems and Suggested Adjustments on Farms in Selected Truck Crop Areas", prepared by the Bureau of Agricultural Economics in cooperation with State Agricultural Experiment Stations. 1/

1/ Mimeographed reports of the Bureau of Agricultural Economics, 1941.
Farm Management Problems and Adjustments on Truck Crop Farms in Franklin Township, Gloucester County, New Jersey.
Adjustments on Truck Crop Farms in the Cedarville Area of Cumberland County, New Jersey.
Adjustments on Truck Crop Farms in a Selected Area in Caroline and Dorchester Counties, Maryland.
Adjustments on Truck Crop Farms in the Snow Hill Area of Worcester County, Maryland.
Planning Adjustments on Truck Crop Farms in the Pocomoke Area of Somerset and Worcester Counties, Maryland.
Planning Adjustments on Truck Crop Farms in Wicomico County, Maryland.
Farm Management Problems and Suggested Adjustments on Vegetable Farms in Bristol County, Mass.
Farm Management Problems and Adjustments in Producing Lima Beans and Peas for Quick Freezing, Cumberland County, New Jersey. New Jersey Agricultural Experiment Station (mimeographed) 1941.

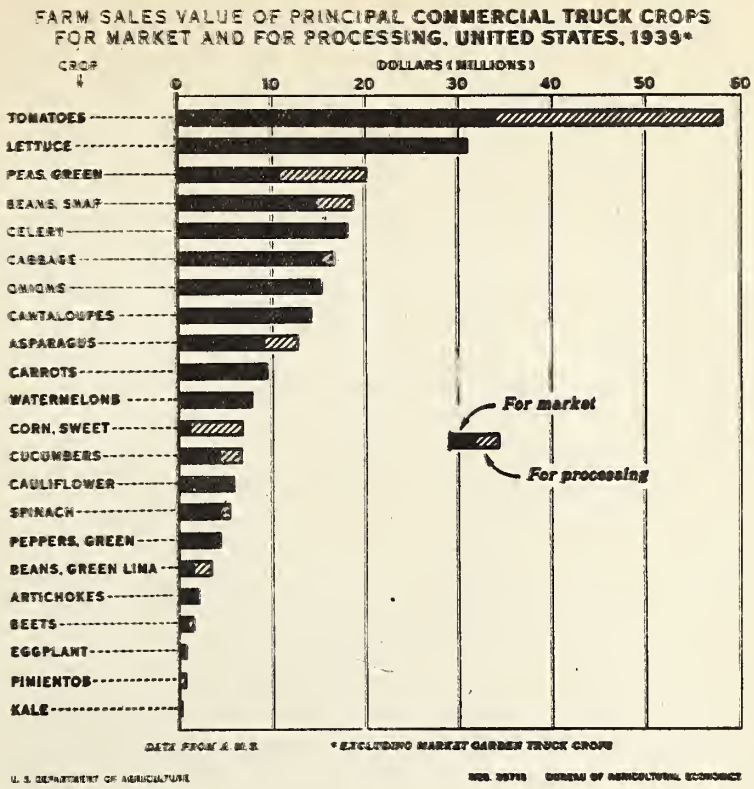

FIGURE 1

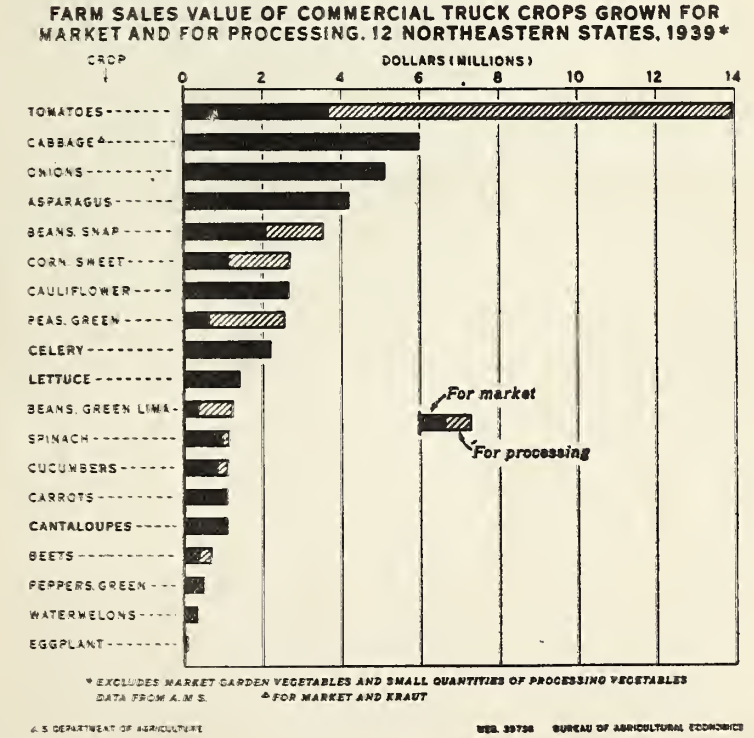

FIGURE 2

Types of Production and Utilization

Tomato production may be divided into four general types:

(1) Noncommercial production in home gardens, largely for home use.

(2) Commercial production in market gardens for sale fresh in nearby centers of urban consumption.

(3) Commercial production on truck-crop farms for shipment for sale fresh in distant cities.

(4) Commercial production on truck-crop and general farms for processing.

This report is based largely on statistics assembled by the Crop Reporting Board whose reports only partly cover market-garden production. If all market-garden production were included in estimates of market production by the Crop Reporting Board, which are generally referred to as production of "tomatoes for fresh market shipment", some of the trends shown might be different, particularly in the Northeast where market gardening is important.

The commercial tomato crop for fresh market, including market-garden production, constitutes about 35 to 40 percent 2/ of the total commercial tonnage of tomatoes produced in the United States. The rest of the commercial crop is processed into canned tomatoes, pulp, juice, paste, puree, and similar products (table 1).

Although production has increased, no great change in the relative proportion of tomatoes utilized for market or processing has taken place in the last two decades. But the number of processed products has increased. New uses, including juice, now take large parts of the larger crop. It is estimated that only about 40 percent of processed tomatoes are canned as whole tomatoes now compared with practically 100 percent when commercial processing started. Approximately 15 percent of the processed crop is used for juice and 5 percent for pulp. The rest is utilized for numerous other products (fig. 3). Tomato juice was not processed commercially before 1920, and many other new products have come into prominence only recently.

2/ In table 1 the indicated percentage is about 25 percent. But this figure does not include market-garden production which would probably raise market production by 50 percent.

Table 1.- Production of commercial tomatoes for market and for processing, United States, 1918-1940 1/

Year	For market 2/		For processing		Total
	Tons	Percent	Tons	Percent	Tons
1918	279,363	15.1	1,565,900	84.9	1,845,263
1919	284,212	20.4	1,111,100	79.6	1,395,312
1920	306,287	21.8	1,099,800	78.2	1,406,087
1921	270,035	37.1	456,900	62.9	726,935
1922	376,008	23.9	1,199,200	76.1	1,575,208
1923	354,808	23.3	1,165,300	76.7	1,520,108
1924	408,074	25.5	1,190,200	74.5	1,598,274
1925	448,406	19.9	1,809,200	80.1	2,257,606
1926	359,260	26.5	998,600	73.5	1,357,860
1927	437,621	26.8	1,195,900	73.2	1,633,521
1928	422,781	29.8	997,200	70.2	1,419,981
1929	482,830	23.9	1,534,700	76.1	2,017,530
1930	457,840	20.7	1,757,500	79.3	2,215,340
1931	448,884	31.5	976,400	68.5	1,425,284
1932	478,776	28.5	1,199,300	71.5	1,678,076
1933	434,388	28.7	1,081,300	71.3	1,515,688
1934	559,627	28.2	1,425,700	71.8	1,985,327
1935	552,286	24.5	1,700,200	75.5	2,252,486
1936	551,359	21.7	1,987,500	78.3	2,538,859
1937	568,610	22.8	1,926,300	77.2	2,494,910
1938	655,186	27.3	1,742,600	72.7	2,397,786
1939	655,981	24.7	1,999,900	75.3	2,655,881
3/ 1940	639,339	21.9	2,274,700	78.1	2,914,039

1/ Excluding quantities of market garden tomatoes.

2/ Inclusion of market-garden tomatoes would probably raise these figures by approximately 50 percent. The 1934 Census reported 631,886 acres of tomatoes (including market gardening), while the Crop Reporting Board estimated 368,660 acres used for production for processing in that year or 58 percent of the total, leaving 42 percent for market. This compares with 28.2 percent of production given in table 3, which is 33 percent less than the figure arrived at by calculations from the Census.

3/ Preliminary.

Compiled from Reports of the Agricultural Marketing Service.

UTILIZATION OF COMMERCIAL TOMATO PRODUCTION FOR PROCESSING, UNITED STATES, 1922 - 40

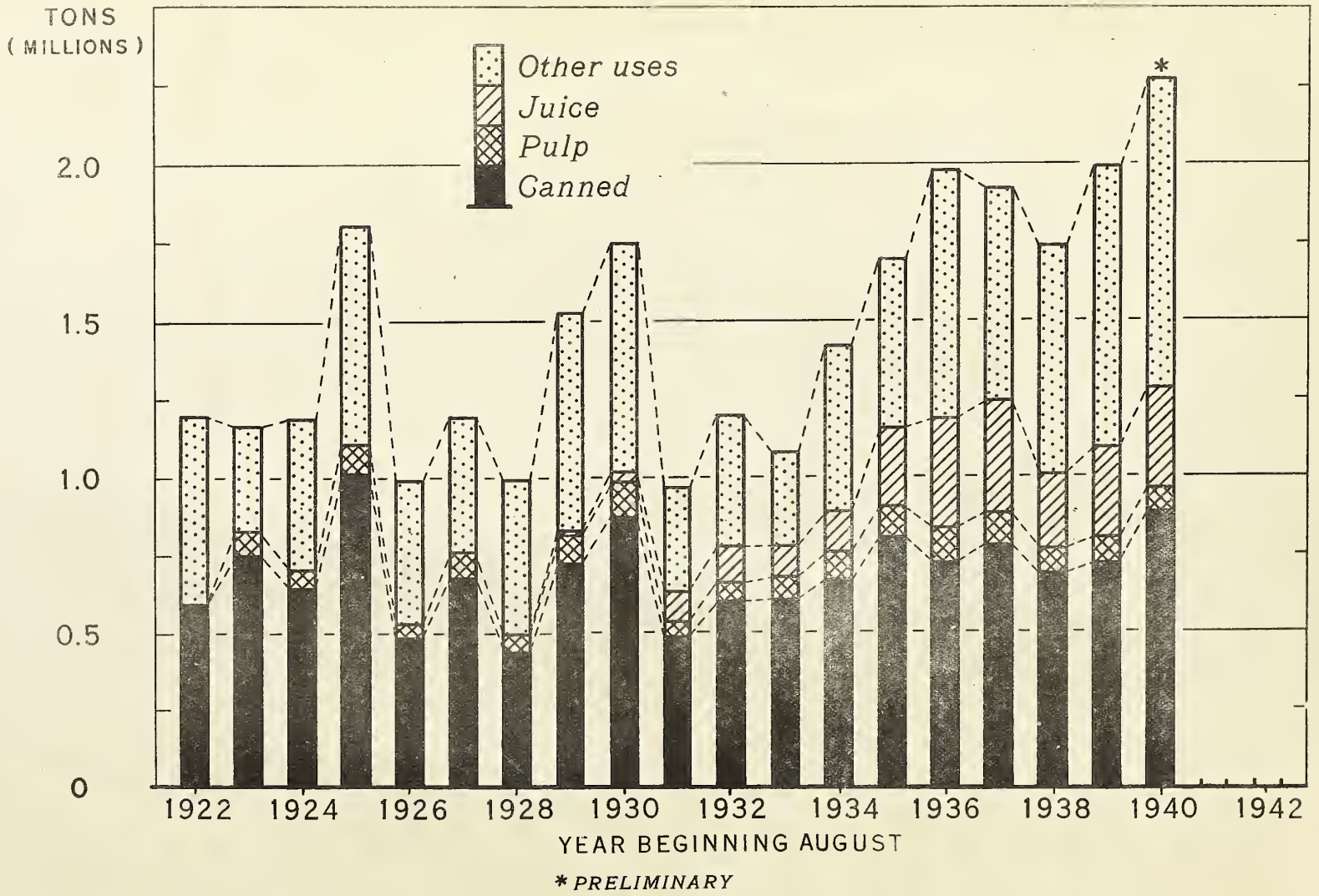

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FIGURE 3

Producing Areas in the United States

Tomatoes are grown in almost all parts of the United States, but tomato production tends to be concentrated in parts of the Atlantic, South Central and East North Central States, and in California, Colorado, and Utah. This concentration is caused by several factors, the most influential of which are soil, climate, proximity to markets, and relative costs of production.

Although many types of soil are used to grow tomatoes, soils of a well-drained character, rich in organic matter, are best. Well-drained soils, having a clay subsoil, capable of being worked early in the spring, are preferred for early production. Later maturing production is grown on heavier soils of a silty clay loam character. Soils that are poorly drained and deficient in organic matter are not satisfactory for tomato production.

Because of the warm climate, the South produces principally for the winter fresh market - the season when prices are highest. Even in parts of the South where soils may not be well adapted to production and where climate may not be ideal, the high prices for the winter crop may more than offset these disadvantages. On the other hand, producing areas with colder climate usually produce in the summer, chiefly for canning, because of low costs and the low fresh-market prices prevailing in these months.

Proximity to markets is important in determining the competitive advantage of a tomato-producing area. The influence of nearness to markets on concentration of production is reflected in the location of market gardens. In all areas, but particularly in the North, market gardens are clustered around cities. Because of their advantageous position near areas of consumption, which results in low transportation costs, they produce tomatoes almost entirely for fresh use. Similarly, in seasons when tomatoes are shipped great distances, relative proximity is an influential market factor. For example, tomatoes produced in California are shipped largely to relatively close Western markets while Florida tomatoes are marketed mostly in Eastern cities.

Within the United States, seven commercial tomato-producing areas may be distinguished on the basis of broad production and marketing similarities 3/ (fig. 4). In a broad way, these areas are: (1) the Northeastern Seaboard area, (2) the North Central area, (3) the Mid-Southern area, (4) the Southern area, (5) California, (6) Utah and Colorado, (7) the Northern Pacific area.

3/ Based largely on data from Bureau of Plant Industry, U. S. Department of Agriculture; marketing and production data from the Agricultural Marketing Service; "Cost of Production of Tomatoes" by H. W. Hawthorne - processed, 1936, Bureau of Agricultural Economics; and "Canned Tomatoes and Tomato Paste," United States Tariff Commission, 1929. The area designations used here are not to be confused with designations more commonly used. They apply primarily to the tomato industry.

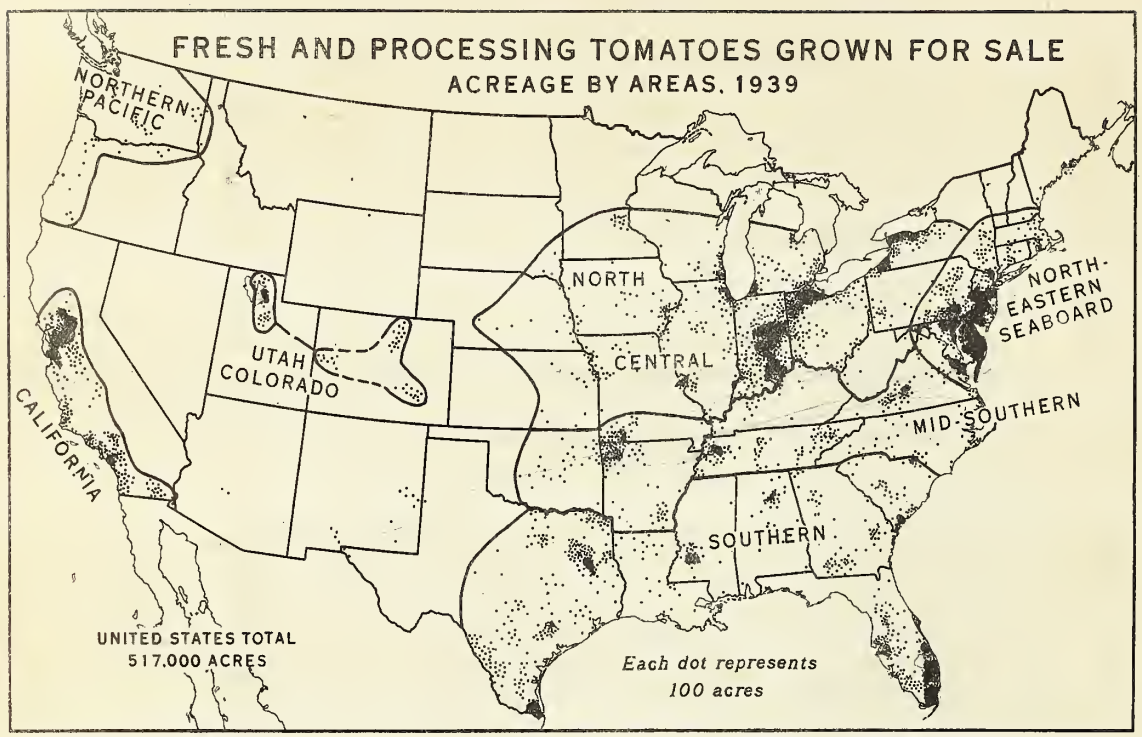

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FIGURE 4

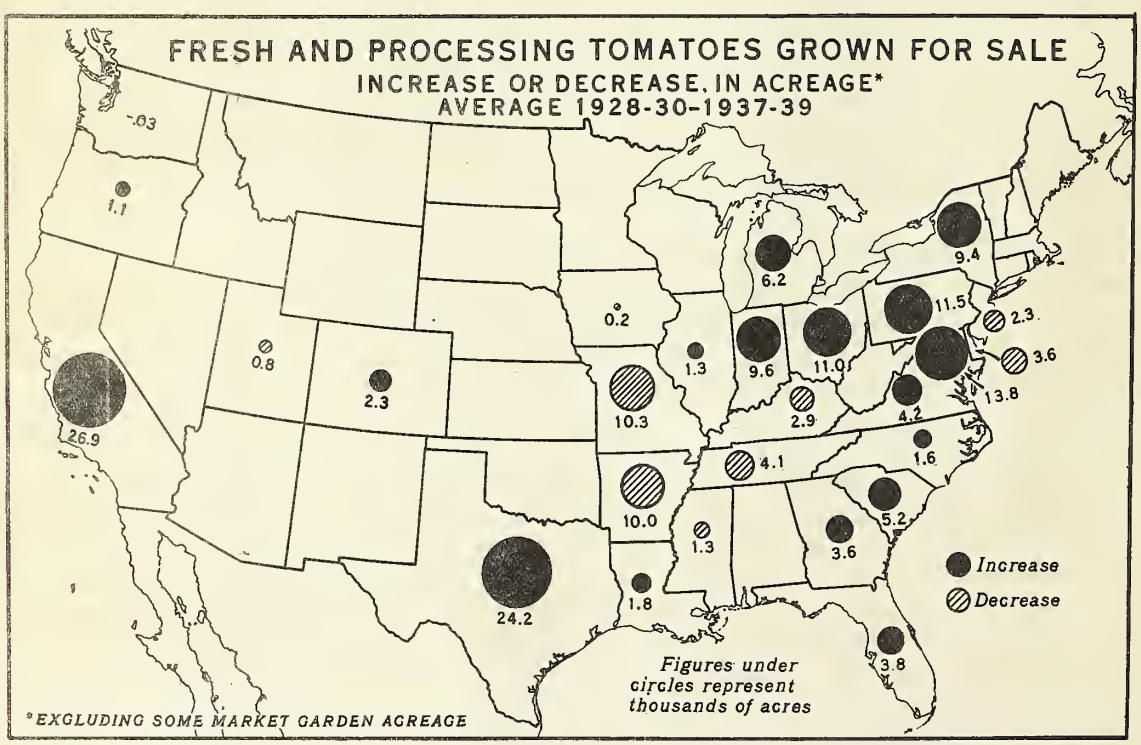

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FIGURE 5

The Northeastern Seaboard area includes the coastal area from Massachusetts to Virginia. In the extreme upper half, practically all tomatoes are grown in market gardens and are used fresh. The lower areas produce mostly for processing. Production is in summer only, except in the extreme southern part where a spring crop is possible. Soils are well-drained, sandy loams well adapted to tomato production when fertilized.

From Massachusetts to New Jersey heavy applications of fertilizer are made and cultivation is intensive. Yields are relatively high. Prices and growing costs per acre and per unit are relatively low for the fresh crop when compared with those of winter-producing areas, but not so when compared with other summer-producing areas. Prices and growing costs per acre and per ton for the canning crop are high, and transportation expenses are low.

In the lower Northeastern areas, from Delaware to Virginia, lighter applications of fertilizer are made and yields are lower than in the upper Northeastern areas. Prices and growing costs per acre and per unit are low for the fresh crop when compared with those of winter-producing areas and also low when compared with the crop in other summer-producing areas. In the extreme southern areas prices are relatively high. Prices and growing costs per acre and per ton for the canning crop are lower than in the upper Northeastern States.

The North Central area extends to the Great Lakes on the north and to Eastern Kansas and Nebraska on the west. It is bordered by the Mid-Southern area on the south and by central New York and Pennsylvania on the east. Production is mostly for processing, although the quantity produced for fresh market is substantial. Although it is a large summer-producing area, it is not primarily surplus-producing. Much of the production is consumed in large cities in the eastern part of the area. Many market gardens are located near the large cities. Well-drained, silty clay loams, rich in organic matter are used. Fertilizer is applied in moderate quantities. Yields, costs, and output are relatively high in the eastern part and low in the western part, although the area as a whole tends to have relatively good yields, low per acre and unit costs, and low prices.

The Mid-Southern area is bordered by the Southern area on the south and by the Northeastern Seaboard and North Central areas on the north. It extends as far west as central Oklahoma. Production in this area is utilized both for fresh market and for canning. Surplus fresh tomatoes are shipped to the North in spring and early summer. Considerable quantities of tomatoes for canning are also produced. Sandy loams and silt loams with medium to low fertility are characteristic. Relatively light applications of fertilizer are made. Cultivation is extensive. Yields and costs per acre are low. Yields are particularly low for canning tomatoes.

The Southern area includes the lower Southern States and may be classified as a primary surplus area for fresh tomatoes in winter and a deficit canning area. Tomato soils in this area have a wide range. They are largely well-drained, fine sandy loams to loams. Organic content is low and heavy applications of fertilizer are made, particularly in the extreme southern parts. In Florida, fine sandy to sandy loams are heavily fertilized and well drained to obtain a crop. In most of the Southern area sandy soils are used for an early crop. Irrigation is practiced in the western parts. Yields are relatively low. Production is mostly in fall, winter, and spring. Transportation and growing costs per acre and per bushel are relatively high, particularly in the extreme southern parts. Farm prices are relatively high.

California is the principal western producing area. It is a surplus year-round producing area, shipping fresh tomatoes in certain seasons to all parts of the country. Canneries are located in the northern district and in and around Los Angeles County; a variety of processed products are shipped to distant markets. Irrigated bottom soils of a sandy loam to silty clay loam character, rich in organic matter and not requiring much fertilizer, are chiefly used. Cultivation is intensive. Growing costs per acre are relatively high, but high yields of good quality reduce unit growing costs to some extent.

The Utah-Colorado area is a secondary supply area. Tomatoes are grown in summer and a large part of the production is canned. Production is under irrigation and on soils that are mostly alluvial loams to silty clay loams. Fertilizers are used moderately. Yields are high but in Utah yields are lower than in Colorado. Transportation costs are favorable because the crop is largely marketed in surrounding States. Growing costs per acre and per ton are moderately high. Farm prices are relatively low.

The Northern Pacific area is relatively unimportant. It produces tomatoes for the fresh market as well as for processing mostly for local and western consumption. Silt loams are generally used and the eastern sections are irrigated. Yields are rather high but farm prices are low.

TRENDS IN TOMATOES FOR FRESH MARKET SHIPMENT BY AREAS 4/

Fresh utilization provides a prime outlet for tomato production. Approximately 35 percent of total tomato acreage is devoted to fresh use, and more than 60 percent of total farm sales value is derived from it. The concentration of fresh acreage occurs in areas east of the Mississippi River, in the Ozark area, and in California, Texas, Colorado, and Utah (fig. 6) 5/. Southern areas produce primarily for winter fresh use, whereas the northern and western areas produce primarily for summer fresh use. California produces fresh market tomatoes in all seasons.

Before the turn of the century a consuming area produced its own tomato supplies in the local growing seasons; transportation and other technological difficulties barred importing distant supplies in other seasons. When local production was impracticable because of climatic conditions, fresh tomatoes were a rarity. But since 1900, many technological obstacles to fresh shipment have been overcome. Surplus-producing areas now supply all markets in every month of the year. Each attempts to supply markets in those seasons when competition from other areas is limited by distance to markets and by adverse climatic factors. Since climate does not spread itself uniformly, however, supplies are abundant in certain seasons and scarce in others. As a result, the degree of competition varies with the seasons.

The producing areas that supply markets at approximately the same time have been grouped and designated by the Agricultural Marketing Service as follows: (1) Fall, (2) Early 1, (3) Early 2, (4) Second Early, (5) Intermediate, (6) Late 1, and (7) Late 2 (fig. 7 and table 2).

Table 2.- Approximate harvesting and marketing seasons for fresh market tomatoes.

Season	Harvesting and marketing period		Principal marketing period
	Start	Finish	
Fall	Oct. 20	Jan. 15	November, December
Early (1)	Jan. 1	May 15	Feb. 15 - April 30
Early (2)	April 1 /1	June 15	April 15 - May
Second Early	May 10	July 15	May 20 - June
Intermediate	June 1 2/	Sept. 15 3/	June - August
Late 1	July 1	Oct. 31	July 1 - Sept.
Late 2	Aug. 15	Nov. 30	Sept. 15 - Nov. 15.

1/ Dec. 1 for Imperial Valley
2/ April 1 for California
3/ Northern California to Nov. 15
Source: Agricultural Marketing Service.

4/ This discussion covers commercial tomatoes for fresh market shipment that are marketed from well defined, specialized areas of production. It does not cover considerable quantities of market garden tomatoes.

5/ In the following discussion, the political boundaries of the Northeastern States will be considered as one area consisting of Delaware, Maryland, New Jersey, New York, Pennsylvania and Virginia. This compares with the geographical boundaries used in fig. 4. Virginia has been included in the Northeastern area although politically it is not considered as a Northeastern State.

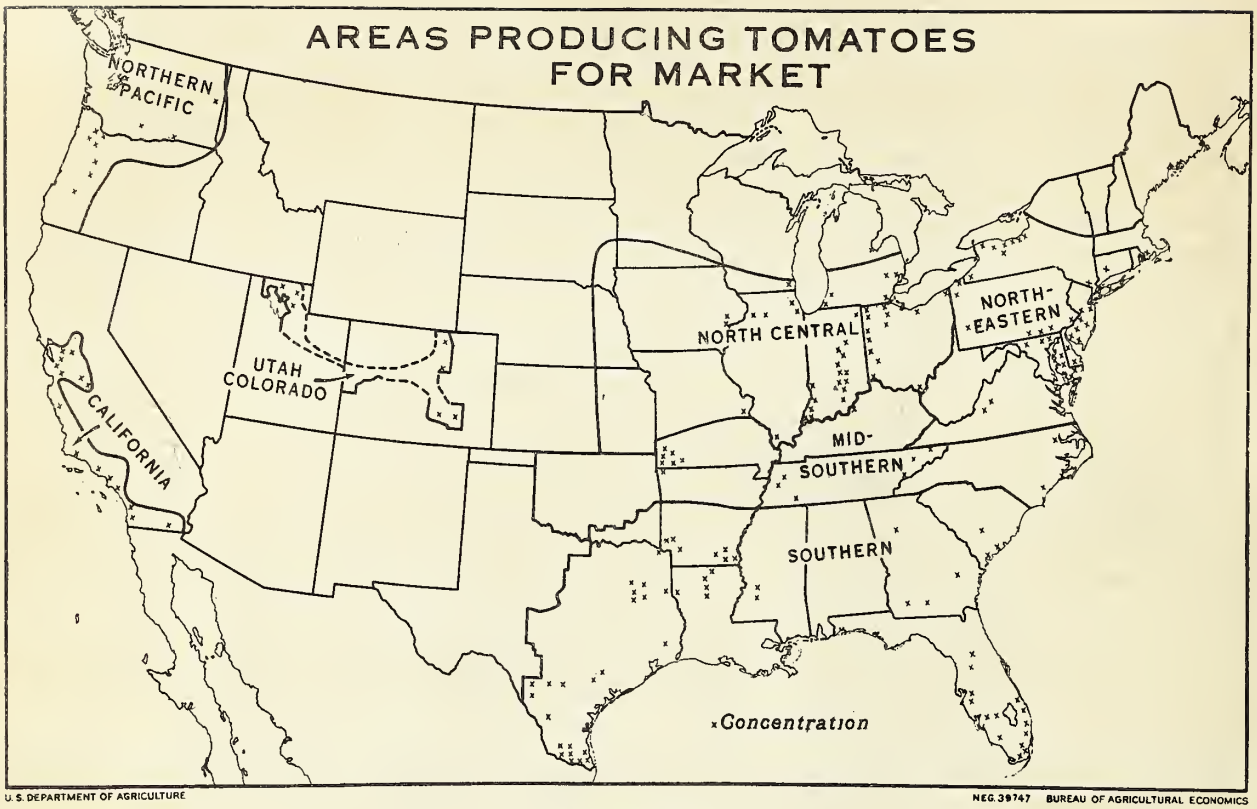


FIGURE 6

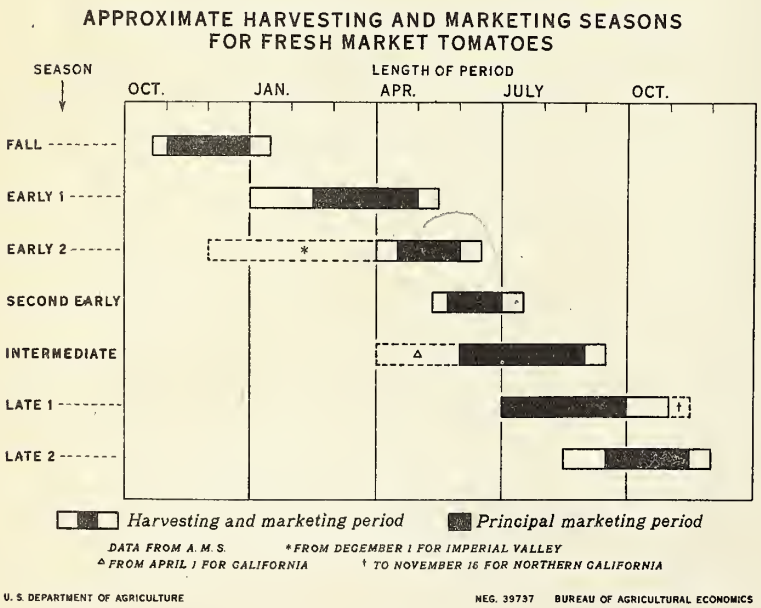


FIGURE 7

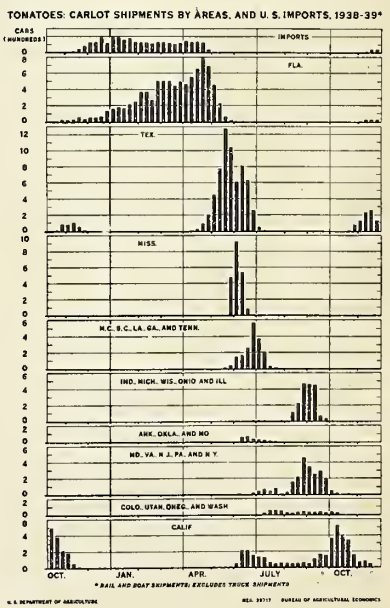


FIGURE 8

The lower Southern area supplies the earliest domestic tomato shipments (fig. 8). Starting in late October and extending to mid-January, the Fall crop of southern Florida competes in northern markets with the Fall crop of southern Texas. These Fall tomato supplies overlap and compete in October and November with Late 2 shipments from southern California that are marketed from mid-August to November.

South Florida produces another crop of tomatoes starting in January and ending in mid-May. This crop is called Early 1. It and the Fall crop provide the main source of domestic supplies from January to March, supplemented by imports from Cuba and Mexico.

Early 1 tomatoes compete with Early 2's, which are harvested in the Lower Rio Grande Valley in Texas in April and May. Florida also produces another crop for the Early 2 season that supplements its Early 1 crop. The Imperial Valley of California ships Early 2 tomatoes to western markets starting in December and ending in May.

Beginning in mid-May, when the Early 2 crop is winding up, Second Early tomatoes are shipped from the upper sections of the Southern area. Second Early marketings are completed by mid-July. Copiah and Hinds Counties, Miss. and northeastern Texas are the principal competing areas in the Second Early shipping group.

Spring and summer shipments come from the Intermediate and Late 1 production areas and from market gardens located in the North. Intermediate tomatoes are marketed beginning in June and they compete vigorously with the Second Early crop. The southern part of the Northeastern area, the mid-Southern area, and central California are the principal Intermediate producing areas. New Jersey, Maryland, and Virginia compete in the Seaboard cities beginning in late June. Supplies from these States reach a peak in July and August and the shipping season is over by September. The Ozark area and western Tennessee start their shipments 2 to 4 weeks earlier and complete them about 4 to 6 weeks earlier than the lower Northeastern Seaboard areas with which they compete in northern markets. California provides the supply for many Western cities in this season.

The Late 1 tomato season starts in July and extends to the end of October. It overlaps with parts of the Intermediate season. In July, August, and September, Late 1 and Intermediate areas ship many tomatoes to the same markets. Late 1 supplies are furnished mostly to nearby markets by the North Central, Upper Northeastern, Utah-Colorado, Northern Pacific, and Northern California areas. Marketing periods very somewhat for these different Late 1 areas. Supplies come to market earliest from the mid-Southern and lower Northeastern Seaboard areas and latest from the Utah-Colorado and California areas. In the Northeast, Delaware ships from July to September, with peak marketings from mid-July to mid-August. Pennsylvania has a long season from July to October. Its heaviest shipments occur in September. New York tomatoes move later than in most other Northeastern States; the season lasts from August to mid-October, with peaks in August and September. In general, Northeastern tomatoes are marketed in nearby cities from July to October, which is the peak supply season.

All shipping groups and areas compete to some degree with each other, if only by adding to the total supply. But supplies are usually obtained from local producers whenever possible. Most interregional shipments are made primarily when climate or soil in the receiving area do not permit tomato cultivation. Competition is felt most keenly and directly when different areas ship at the same time of the year and to the same markets.

Acreage Trend Is Upward

Tomato acreage has increased considerably since the middle of the nineteenth century. This upward trend has been rapid in recent years. The average commercial acreage of tomatoes for market in the United States in 1937-40 was 163 percent above the average in 1918-21 (table 3). At first, expansion took place in the Eastern part of the North Central area and in the Northeastern area. Since the turn of the century, however, although acreage has increased in every area, it has increased most in the Southern, Mid-Southern and California areas. By 1918-21, the first years of Crop Estimates data, Southern States were already in important acreage positions. For the next two decades Southern and Western acreage continued to expand, so that Texas, Florida, and California ranked high in acreage in 1939. Southern acreage has increased largely to fill the seasonal supply gaps that the North was unable to fill.

Table 3.- Harvested acreage and change in harvested acreage of commercial crop of tomatoes for market by groups of marketing areas and for six Northeastern States, average, 1918-21 and 1937-40 1/

Group and State	Average acreage		Change	
	1918-21	1937-40		
	Acres	Acres	Acres	Percent
Fall	920 2/	9,700	+8,780	+954
Early (1)	8,782	13,925	+5,143	+ 59
Early (2)	11,498	37,850	+26,352	+229
Second Early	11,988	53,275	+41,287	+344
Intermediate	22,882	49,658	+26,776	+117
Late (1)	22,962	36,122	+13,160	+ 57
Late (2)	--	7,350	+ 7,350	--
United States	79,032	207,880	+128,848	+163
Delaware	2,538	210	-2,328	-92
Maryland	2,400	6,150	+3,750	+156
New Jersey	11,882	11,875	-7	3/
New York	2,952	8,275	+5,323	+180
Pennsylvania	1,012	2,062	+1,050	+104
Virginia	2,088	2,575	+ 487	+ 23
Six States	22,872	31,147	+8,275	+ 36

1/ 1940 preliminary.
2/ 1921 only.
3/ Less than 1 percent.
Compiled from reports of the Agricultural Marketing Service.

The expansion of acreage in those areas which can produce in seasons that are not suited for northern production may be illustrated by the acreage trends for the different seasonal shipping groups (table 3). Late 2, Fall, Early 1, Early 2, and Second Early tomatoes which come from the winter-shipping areas, have expanded greatly. Intermediate and Late 1 tomatoes that come from the summer-shipping areas have increased acreage proportionately less.

Early 1 acreage in southern Florida rose 59 percent from 1918-21 to 1937-40. Early 2 acreage, located in the lower Southern and California areas, increased 229 percent. Second Early acreage, located in the Upper Southern area, rose 344 percent. The greatest proportionate rise in acreage for any shipping group was recorded for Fall production, located in southern Florida and Texas. Acreage here jumped 954 percent. Most of the more recent expansion has occurred in Texas. Although Fall acreage has expanded greatly and although it is of prime importance in fall months, Fall supplies do not make a large contribution to the total yearly supply of tomatoes 6/.

By contrast to the great increase of Fall acreage, Late 1 acreage increased only 57 percent. Northern and western areas produce most of this crop, which is scattered in the Northern Pacific, Utah-Colorado, North Central, and Northeastern areas and in central California. The Intermediate shipping States, located in the Mid-Southern, lower Northeastern and California areas, increased acreage 117 percent.

Acreage in the Northeastern States has generally increased since 1918, although not so greatly as in the Southern and California areas. Maryland acreage rose 156 percent between 1918-21 and 1937-40; New York, 180 percent, Pennsylvania, 104 percent. New Jersey acreage remained about the same while Virginia acreage increased only about 23 percent. In the same period Delaware acreage decreased sharply, 92 percent. Although few figures are available on market garden acreage, it is estimated that expansion has taken place for this type of production in all areas, but particularly in the Northeast.

6/ No acreage was reported for the southern California Late 2 crop in 1918-21. Between 1924-28 and 1937-40, acreage decreased.

Yield Trend Is Downward

The Late 1 and Intermediate shipping areas have the highest yields compared with other areas (fig. 9). Of these Late 1 and Intermediate areas, yields in the Northeastern, East North Central, Utah-Colorado, Northern Pacific, and California areas are highest, whereas Mid-Southern yields are fairly low. Yields for the Early 2, Second Early, and Fall shipping areas located in the Southern area are low. Soils and climate are relatively unfavorable for good yields in these areas. On the other hand, because of favorable climate and soils, most summer producing Late 1 and Intermediate areas have a definite advantage with regard to yield. During the period 1929-38, Late 1 yields were highest of all shipping groups and Intermediate yields second highest. New York, New Jersey, Maryland, Delaware, Virginia, and Pennsylvania yields compare favorably with the yields of other States.

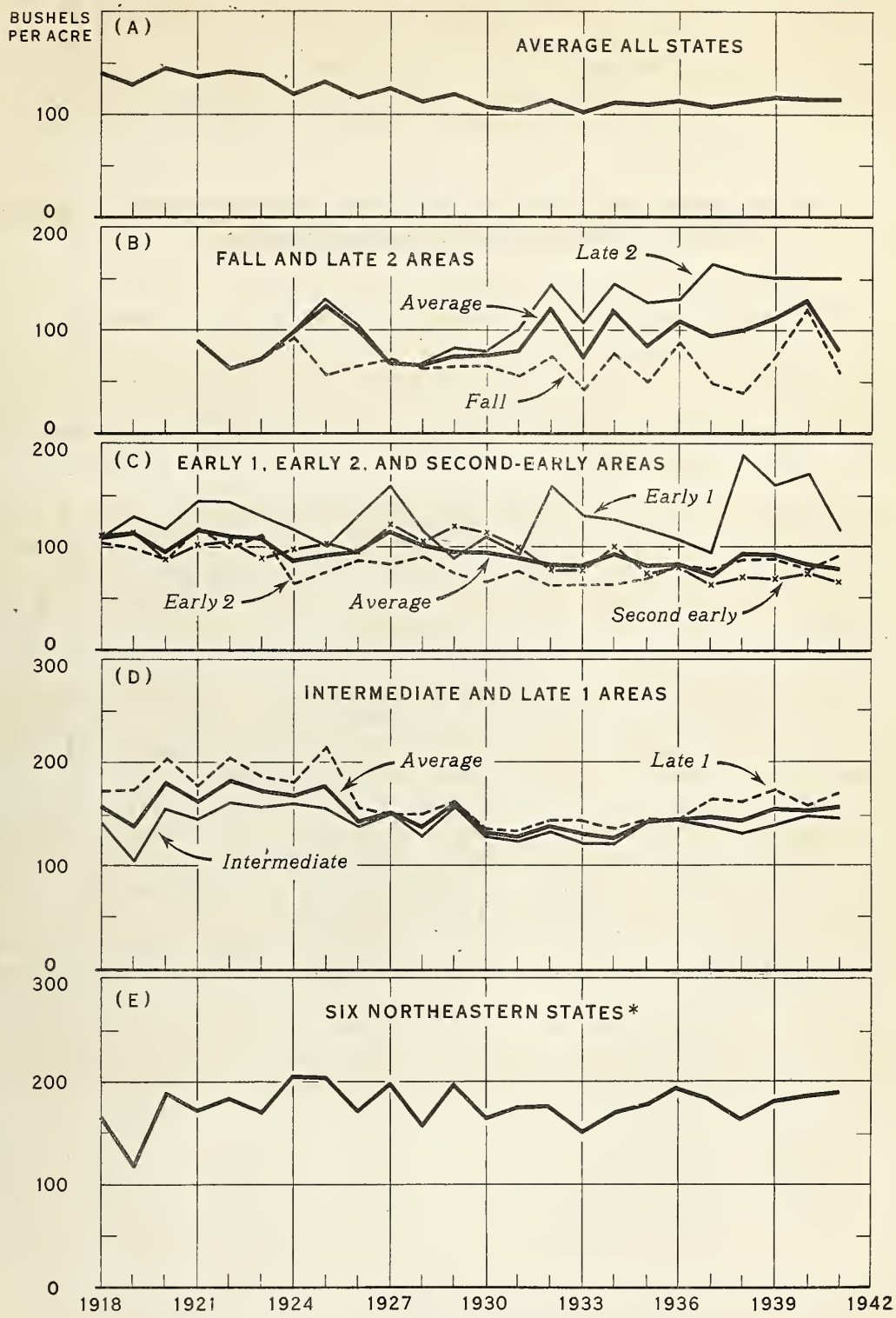
The average annual yields of the tomato crop for market have declined in the past two decades (table 4). From an average yield of 137 bushels an acre in 1918-21, yields declined to 114 bushels in 1937-40.

Table 4.- Yield per acre and change in yield per acre of commercial crop of tomatoes for market by groups of marketing areas and for six Northeastern States, average, 1918-21 and 1937-40 1/

Group and State	Yield per acre 1918-21	Yield per acre 1937-40	Change	
	Bushels	Bushels	Bushels	Percent
Fall	90 2/	73	-17	-19
Early (1)	125	150	+25	+20
Early (2)	103	83	-20	-19
Second Early	103	70	-33	-32
Intermediate	134	139	+5	+4
Late (1)	182	164	-18	-10
Late (2)	--	155	--	--
United States	137	114	-23	-17
Delaware	110	124	+14	+13
Maryland	117	140	+23	+20
New Jersey	154	175	+21	+14
New York	280	229	-51	-18
Pennsylvania	147	199	+52	+35
Virginia	116	137	+21	+18
Six States	158	180	+22	+14

1/ 1940 preliminary.
2/ 1921 only.
Compiled from reports of the Agricultural Marketing Service.

YIELD PER ACRE OF TOMATOES FOR MARKET, BY GROUPS OF MARKETING AREAS AND FOR SIX NORTHEASTERN STATES, 1918-41



DATA FROM A. M. S. DATA FOR 1940 AND 1941 ARE PRELIMINARY

* INCLUDES N. J., N. Y., MD., PA., DEL., AND VA.

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FIGURE 9

Yields in the upper Southern area, shipping the Second Early crop, declined most -- 32 percent between 1918-21 and 1937-40 (fig. 9). The greatest declines took place in Texas and South Carolina. On the other hand, Early 1 yields in southern Florida increased in the same period. Early 2 yields declined 19 percent, with most of the decrease taking place in the Lower Rio Grande Valley of Texas. An increase in yield was recorded for the Early 2 crop of the Imperial Valley.

The yields of the Fall crop in the lower Southern area of Texas fell in the past few decades. Florida yields were maintained.

In the Intermediate shipping group, yields for the group as a whole have been maintained. Divergent trends are noticeable, however, among the subareas within the group. Yields in the Ozark area declined, particularly during 1934-36. Sharp declines occurred in Union County, Ill., whereas sharp increases took place in southern Ohio. California yields increased. Yields in the lower Northeastern area have increased moderately.

Several divergent trends are also noticeable for the different areas that make up the Late 1 shipping group. As a whole, Late 1 yields decreased 10 percent between 1918-21 and 1937-40, but declines have been most pronounced for the northern California, the Utah-Colorado, and the North Central crops. Yields in the Northeastern and the Northern Pacific areas have been maintained.

In general, yields have moved downward in the Southern, Mid-Southern, Utah-Colorado, and North Central areas. They have been maintained in Florida and the Northeastern area. Slightly lower yields have been obtained in New York. Higher yields have been obtained in other Northeastern States.

The causes for the downward trend in yield may be found in soil depletion, spread of disease, utilization of poorer grades of land and falling prices. The great increase of tomato acreage apparently was a very influential factor. Greatest increases in acreage took place in the Southern area where yields are low. At the same time, greatest declines in yield occurred in the area. By contrast, Late 2 acreage in Southern California decreased and yields increased.

Lower yields may also have resulted from the declining price trend. Yields have been lowest in low-price periods and highest in periods of high prices. Farmers do not cultivate or pick so intensively when prices are low.

Production Trend Is Upward

Between the periods 1918-21 and 1937-40 the United States production of commercial tomatoes for market increased 118 percent (table 5). By comparison, acreage increased 163 percent. Production has increased less than acreage because of lower yields, resulting largely from the expansion of acreage in low-yield Southern areas.

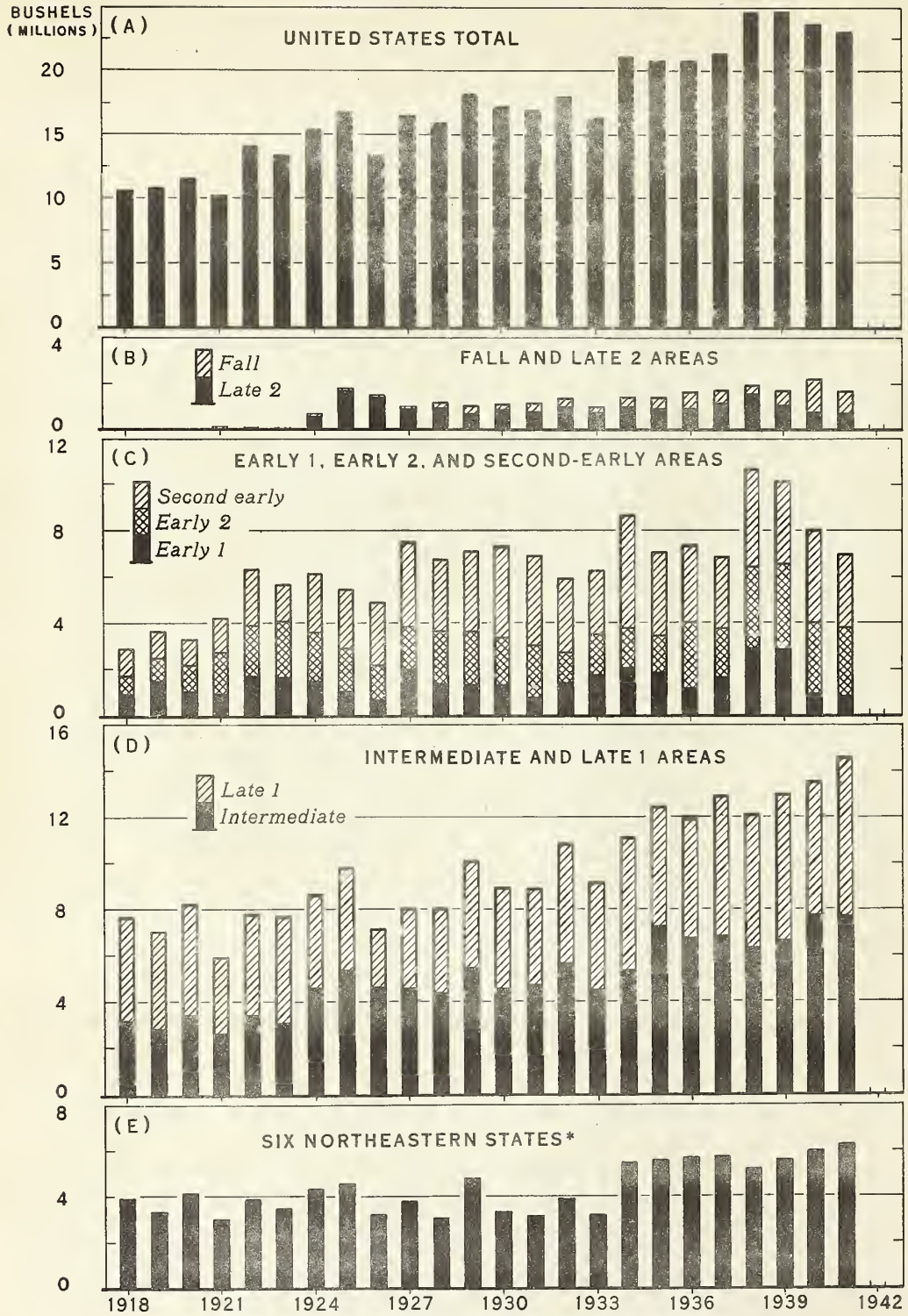
Table 5.- Production and change in production of commercial crop of tomatoes for market, by groups of marketing areas and for six Northeastern States, average 1918-21 and 1937-40 1/

Group and State	Average production 1918-21	Average production 1937-40	Change	
	1,000 bushels	1,000 bushels	1,000 bushels	Percent
Fall	83 2/	712	+ 629	+758
Early (1)	1,097	2,094	+ 997	+ 91
Early (2)	1,186	3,140	+1,954	+165
Second Early	1,234	3,716	+ 2,482	+201
Intermediate	3,074	6,919	+ 3,845	+125
Late (1)	4,176	5,938	+ 1,762	+ 42
Late (2)	--	1,141	+ 1,141	--
United States	10,850	23,660	+12,810	+118
Delaware	279	26	- 253	- 91
Maryland	281	862	+ 581	+207
New Jersey	1,834	2,074	+ 240	+ 13
New York	826	1,891	+ 1,065	+129
Pennsylvania	149	410	+ 261	+175
Virginia	242	352	+ 110	+ 45
Six states	3,611	5,615	+ 2,004	+ 55

1/ 1940 preliminary.
2/ 1921 only.
Compiled from reports of the Agricultural Marketing Service.

The center of tomato production has moved in a southwesterly direction toward warmer areas in order to supply the demand for winter tomatoes in Northern cities. In the period before 1900, inadequate transportation facilities limited production in the South and West. By 1918-21, the Southwest shift of production was under way. Florida already ranked as the largest producer of tomatoes for fresh market shipment followed by New Jersey, California, and New York. And by 1939 the Southwest shift had been developed further. Florida, California, and Texas were the ranking States, followed by the Northern States of New Jersey and New York.

PRODUCTION OF TOMATOES FOR MARKET, BY GROUPS OF MARKETING AREAS AND FOR SIX NORTHEASTERN STATES, 1918-41



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* INCLUDES N.J., N.Y., MD., PA., DEL., AND VA.

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FIGURE 10

The greater part of the increase in total United States production occurred in the winter-shipping Southern and Western areas. Early 1 production in southern Florida rose 91 percent between 1918-21 and 1937-40 (fig. 10). Early 2 production in Florida and Texas and in the Imperial Valley rose 165 percent. Texas showed the sharpest increase, although Florida and the Imperial Valley showed sizable gains. Second Early production in the upper Southern area increased 201 percent, a greater increase than in any other Early shipping area. Georgia, Louisiana, South Carolina and Texas all showed sharp gains and Mississippi showed moderate gains.

The sharpest increase of production was made in the lower Southern areas. Fall production in southern Texas and Florida increased 758 percent from 1918-21 to 1937-40. Most of the increase in recent years has occurred in southern Texas, with only a moderate increase in southern Florida 7/.

The combined production in the Intermediate summer-producing sections located in the Mid-Southern, lower Northeastern and California areas, increased 125 percent between 1918-21 and 1937-40. The greatest Intermediate increase took place in California. A considerable expansion occurred also in the Mid-Southern area. In the lower Northeastern area, Maryland production rose greatly, but Virginia and New Jersey production increased only slightly.

Late-summer shipping areas increased production much less than the Southern areas. Late 1 production, which takes place in the North and West, increased only 42 percent between 1918-21 and 1937-40. Of the areas that make up the Late 1 shipping group, the Northern Pacific and Utah-Colorado areas, and New York and Pennsylvania showed the most marked increases. Production in the North Central area increased moderately, with decreases taking place in Illinois and Iowa. Production declined in the Northern District of California and in Delaware.

Although Northeastern production as a whole has increased less than Southern production, certain sections within the Northeast have expanded as much as many of the Southern sections. As a whole, six Northeastern States increased production 55 percent between 1918-21 and 1937-40. However, Maryland production rose 207 percent in the same period, New York production 129 percent, and Pennsylvania 175 percent. On the other hand, Delaware production decreased precititously, and New Jersey production maintained a fairly constant volume. Virginia production increased greatly in the period 1931-36, but it declined greatly from 1937-39.

7/ By contrast, Late 2 production in southern California fell after 1927, a few years after it began. In recent years production has increased somewhat.

The Price Trend

Farm prices of market tomatoes moved downward from the latter part of the 1920's until about 1935. Averaged according to demand conditions in different periods, between 1918-21 and 1922-30 prices showed an increase of 27 percent. But they fell severely in the depression years of 1931-33 and recovered only slightly after 1933. Between 1918-21 and 1937-40 the net decline was 22 percent (table 6). During this period the proportion of winter production, which sells at relatively high prices, was increasing.

Table 6.- Farm price per bushel (53 pounds) and change in farm price of commercial crop of tomatoes for market, by groups of marketing areas and for six Northeastern States, average, 1918-21 and 1937-40 1/

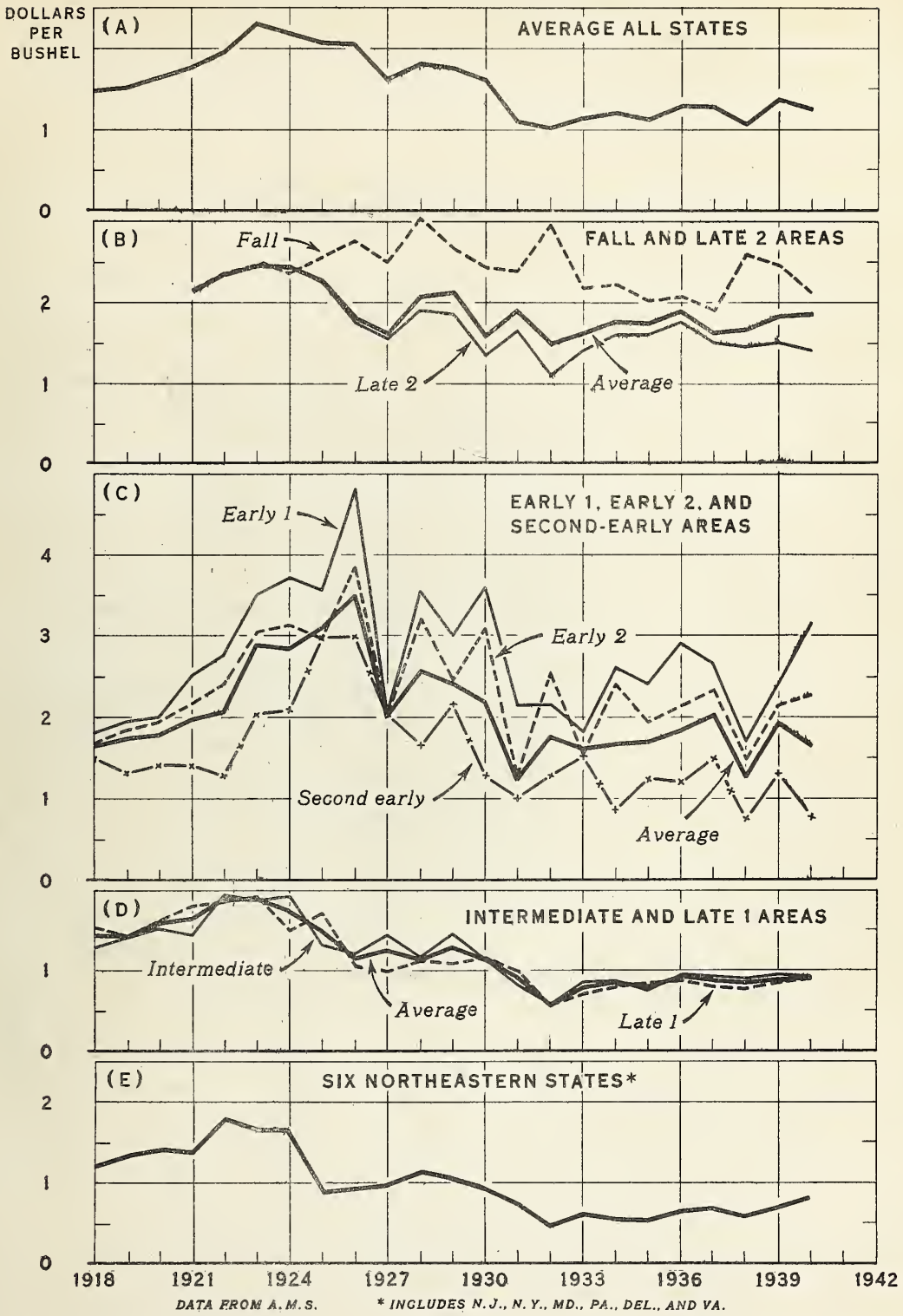
Group and State	Price per bushel		Change	
	1918-21	1937-40		
	Dollars	Dollars	Dollars	Percent
Fall	2.15 2/	2.20	+.05	+ 2
Early (1)	2.05	2.29	+.24	+12
Early (2)	1.96	2.01	+.05	+ 3
Second Early	1.40	1.03	-.37	-26
Intermediate	1.39	.91	-.48	-35
Late (1)	1.57	.80	-.77	-49
Late (2)	--	1.47	--	--
United States	1.58	1.24	-.34	-22
Delaware	1.45	.47	-.98	-68
Maryland	1.11	.59	-.52	-47
New Jersey	1.27	.75	-.52	-41
New York	1.31	.67	-.64	-49
Pennsylvania	1.56	.81	-.75	-48
Virginia	1.61	.58	-1.03	-64
Six States	1.32	.69	- .63	-48

1/ 1940 preliminary.
2/ 1921 only.
Compiled from reports of the Agricultural Marketing Service.

Although almost all prices were lower in the decade of the thirties compared to prices in the prosperous years of 1923-29, price decreases have varied according to the season in which the crop is marketed. Prices for the summer crop have fallen sharply, whereas prices for the winter crop have remained relatively stable. Prices have varied least in the lower Southern area that produces the Fall crop (fig. 11) 8/. Florida Fall prices have been fairly stable, whereas Texas Fall prices have declined, partly because of the sharply expanded production in Texas. Late 2 prices for the Southern California crop have declined.

8/ This was caused partly by the high Florida prices, which were not included in the average Fall price until 1928.

PRICE RECEIVED BY FARMERS FOR TOMATOES FOR MARKET, BY GROUPS OF MARKETING AREAS AND FOR SIX NORTHEASTERN STATES, 1918-40



DATA FROM A.M.S. * INCLUDES N.J., N.Y., MD., PA., DEL., AND VA.

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FIGURE 11

Comparing 1918-21 with 1937-40, Early 1 prices in southern Florida increased 12 percent contrasted to a decrease of 22 percent for the United States average price. Early 2 prices increased 3 percent in the same period. In this shipping group prices for Texas tomatoes fell, while prices for Florida and Imperial Valley tomatoes were maintained. The upper part of the Southern area, which ships the Second Early crop, experienced a price decline of 26 percent. Mississippi and Louisiana prices fell most.

Contrasted with the price increases or moderate price declines in Southern winter-producing areas, prices have declined severely for the late spring and summer crops of the Mid-Southern and lower Northeastern areas. With California, these make up the Intermediate shipping group. Between 1918-21 and 1937-40, Intermediate prices declined 35 percent. Large decreases occurred in every area except California. They were particularly pronounced in the period 1931-33.

Similarly, the Late 1 summer-shipping group of parts of the North Central, and Upper Northeastern areas and Colorado suffered severe price declines. Other areas in the Late 1 group experienced lesser declines. Michigan, Utah, and Northern Pacific prices declined moderately, while prices for the California crop were relatively firm. Late 1 prices as a whole decreased 49 percent between 1918-21 and 1937-40.

In the Northeastern States prices declined sharply. In Delaware and Virginia prices fell most, 68 percent and 64 percent respectively. Pennsylvania prices fell 48 percent, New York prices fell 49 percent, and Maryland prices fell 47 percent. The decline of 41 percent in New Jersey was less than for any other Northeastern State.

What has caused the general decline of tomato prices, and why have different areas experienced different price changes? There are a number of factors that may be considered in answering these questions, notably: (1) The general price level, or the value of money; (2) demand, or factors such as consumer purchasing power and food habits; and (3) supply, or factors such as the volume of production, costs, and quality and the supply of other competing vegetables.

It may be noted here that although the general increase of production was a factor in causing prices to decline, price declines in a given area resulted largely from production charges in that particular area. For example, between 1918-21 and 1937-40 the increase of production in the Southern area was greatest for the Second Early crop; consequently, prices fell most sharply for this crop. Another illustration may be given: In certain seasons, when a freeze has shortened supplies, prices have skyrocketed; the 1940 crop of southern Florida is an example. Yet in the same year that prices are extremely high for one area, other areas may experience extremely low prices.

Production is not the only factor that explains price changes. If it were, why should Early 2 prices in the lower Southern region have increased 3 percent, while production increased 165 percent between 1918-21 and 1937-40, and why should Northeastern prices have fallen greatly though production increased relatively moderately? The answer to these questions may be found partly in the demand situation. It appears that summer tomatoes, which are produced in the Northeast, have a less elastic demand than winter tomatoes, which are produced in the South. Consequently, there are greater proportionate price declines for summer tomatoes, with proportionate increases of supply. In general, demand for fresh tomatoes is more elastic with relatively high prices and low volume than with the low prices and large volume that characterize summer production. An increased demand for Early 2 tomatoes may also have been a factor in the rise of Early 2 prices.

Costs, food habits, general price level, and purchasing power must be considered besides production in an analysis of the price situation. If all these factors remain equal, production can be closely correlated with price. The rising production trend alone would serve to indicate a long run decline of prices in the past and in the future. But other factors modify the influence of production. Since 1934 prices have been firmer because of improved business conditions, although production has increased.

Seasonal Prices

Prices vary greatly between different producing areas, the variation largely depending upon when supplies are marketed. Early shipping areas are able to command much higher prices for their tomatoes than later shipping areas because they are produced in winter when supply is lowest. Prices become lower as the season progresses from the winter to the summer months and as greater supplies are marketed. Variations in weather will affect seasonal prices considerably. But barring unusual weather, the different shipping areas usually rank in price in the following order: Fall, Early 1, Early 2, Late 2, Second Early, Intermediate and Late 1 (fig. 12).

This seasonal-price pattern is reflected in the price movements on the New York market (fig. 13). Wholesale prices for fresh tomatoes in New York City are highest in November and December and remain high to April and May. They fall in June and decline further in the first week of July. They break sharply in the middle of July and remain low through August. Prices are lowest in the middle part of August.

Northeastern tomatoes are relatively low priced. For example, in 1939, Maryland tomatoes did not exceed a weekly average price of $1.26 per lug (6 x 7 pack), and New York tomatoes a price of $1.08 per lug (6 x 7 pack). This compared with the price of $3.11 per lug for the Florida crop and of $2.75 for the Texas crop. Compared with the prices in other Intermediate and Late 1 summer shipping areas, Northeastern prices are relatively low. Some of the areas in the Intermediate or Late 1 shipping seasons have a different marketing period than the Northeast. For instance, the Ozark area ships its crop earlier than Maryland.

Within the Northeastern area itself the range of prices received by different areas is wide. Pennsylvania usually receives the highest prices, while Delaware receives the lowest. The range of prices received by different producers within any one State is also wide. Some producers benefit by marketing their crops either 2 or 3 weeks before or after the low price point in mid-August. In the week ending July 1, 1939, some Maryland producers received $1.26 per lug, (6 x 7 pack), in the New York market. By the week ending July 22, however, prices had fallen to $0.81, and by the 29th to $0.61. Other Maryland producers received the lower prices. Similarly, New York tomatoes brought $1.00 per lug (6 x 7 pack) the week ending July 15, $0.87 the week ending July 29, $0.62 August 12, and $0.43 August 26. By September 7 the price of August 26 had more than doubled to $0.93. The peak of tomato production occurs about August 15, and prices are lowest at this point. Producers who market their crops 3 to 4 weeks earlier or later usually receive higher prices.

It must be emphasized, however, that if many producers shifted their producing season to take advantage of these higher prices, much of this advantage would probably disappear. But, because of climatic and other producing difficulties, all producers cannot shift their producing season.

Prices of tomatoes at a given time and place vary somewhat according to the source of supply. Cuban tomatoes in the New York market sold at higher prices than Florida tomatoes fairly consistently in February and March 1939. California tomatoes were higher priced than New York and Pennsylvania tomatoes in October. Similarly, Maryland tomato prices were comparatively low in July, while New York and Pennsylvania were relatively high during many weeks of the 1939 summer season. These regional price differentials are due largely to variations in quality and packing.

PRICE RECEIVED BY FARMERS FOR TOMATOES FOR MARKET, BY GROUPS OF MARKETING AREAS AND FOR SIX NORTHEASTERN STATES, AVERAGE 1929-38

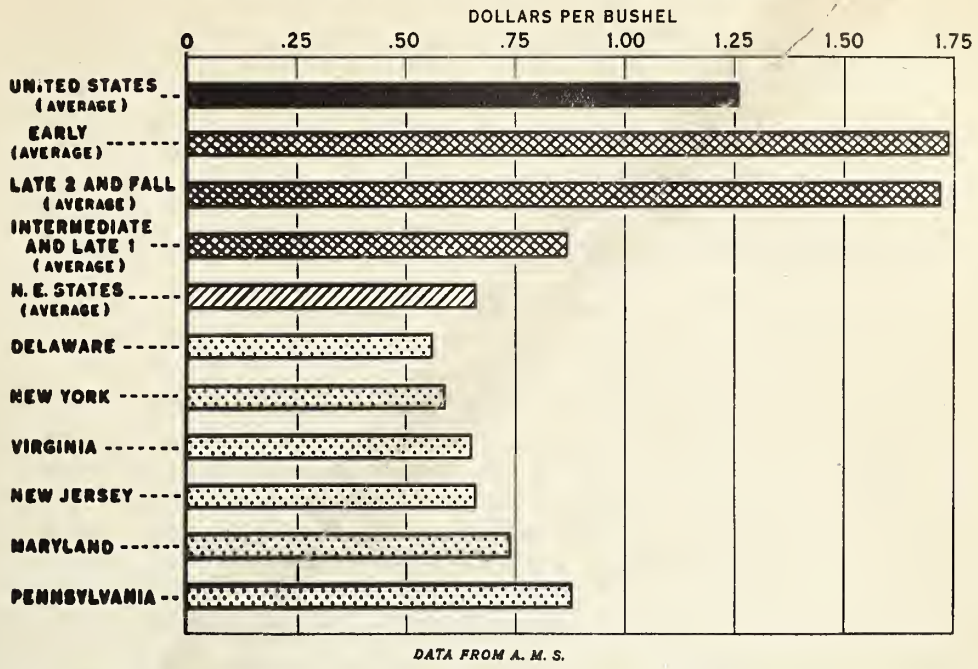

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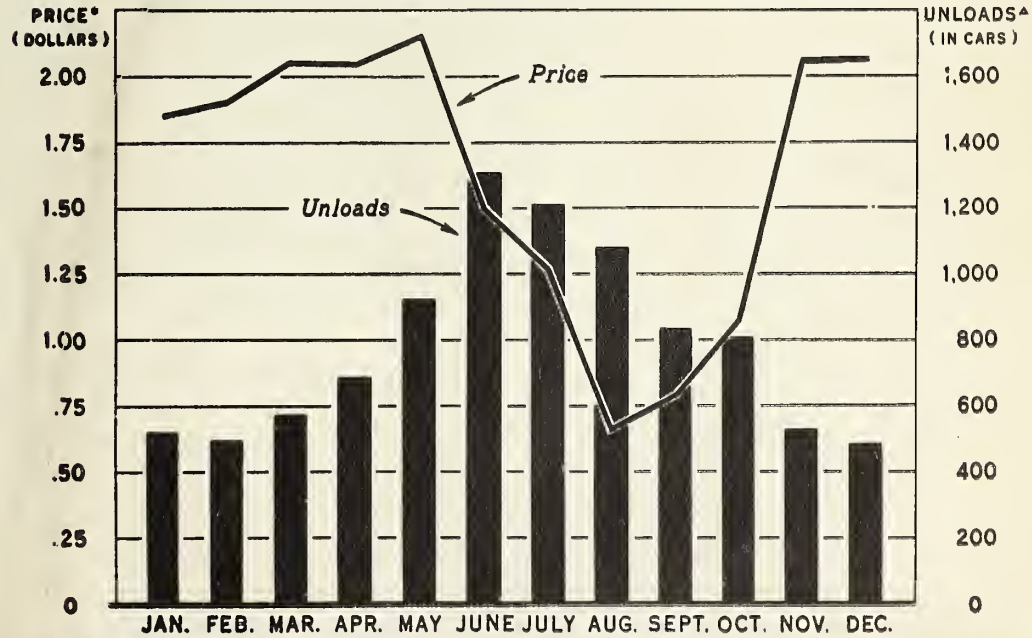
FIGURE 12

WHOLESALE PRICE OF FRESH TOMATOES AND RAIL, TRUCK, AND BOAT UNLOADS, NEW YORK CITY, AVERAGE 1932-39



*PRICE PER 6-TILL CARRIER OF 24 QUARTS ▲EQUIVALENT RAIL CARS; DATA ON TRUCK UNLOADS INCOMPLETE

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FIGURE 13

Value-Per-Acre Trend Is Downward

Value per acre ranged in 1940 from a high of $747 in the Imperial Valley of California to a low of $14 in North Carolina. The highest values in the country have been in the California, Northern Pacific, Florida, Colorado, and southeastern Ohio areas. Values in the Southern area as a whole, in the upper Northeastern area, and in the eastern part of the North Central area have been about average. On the other hand, values are particularly low in the Mid-Southern area and in the western part of the North Central area. Recently, parts of the upper Southern area have had very low values. Many Second Early, Intermediate, and Late 1 values were considerably higher in the period 1918-21 than in recent years.

United States value per acre declined 35 percent from 1918-21 to 1937-40 (table 7). Yet values in some Southern sections rose. Despite declining yields in the Southern area, prices were relatively firm. In the Early 1 southern Florida area, value per acre increased 33 percent between 1918-21 and 1937-40. Values in the Early 2 shipping areas fell only 17 percent. Similarly, values for the Fall shipping areas in the lower parts of the Southern area also decreased relatively little and mostly in Texas. Prices for the Texas crop declined, but yields were fairly stable. In the southern California area that ships the Late 2 crop, values have been maintained largely because of higher yields.

Table 7.- Value per acre and change in value per acre of commercial crop of tomatoes for market, by groups of marketing areas and for six Northeastern States, average, 1918-21 and 1937-40 1/

Group and State	Value per acre		Change	
	1918-21	1937-40		
	Dollars	Dollars	Dollars	Percent
	2/			
Fall	193.50	161.42	- 32.08	-17
Early (1)	256.25	340.71	+ 84.46	+33
Early (2)	201.88	168.26	- 33.62	-17
Second Early	144.20	71.62	- 72.58	-50
Intermediate	186.26	126.16	- 60.10	-32
Late (1)	285.74	132.30	-153.44	-54
Late (2)	--	227.65	--	--
United States	216.46	140.60	- 75.86	-35
Delaware	159.50	57.14	-102.36	-64
Maryland	129.87	83.29	- 46.58	-36
New Jersey	195.58	131.05	- 64.53	-33
New York	366.80	153.20	-213.60	-58
Pennsylvania	229.32	161.46	- 67.86	-30
Virginia	186.76	79.51	-107.25	-57
Six States	207.80	124.76	- 83.04	-40

1/ 1940 preliminary.
2/ 1921 only.
Compiled from reports of the Agricultural Marketing Service.

On the other hand, value per acre for the Second Early crop in the upper Southern area fell 50 percent from 1918-21 to 1937-40. The severity of this decline was caused by a 32 percent fall in yields and a 26 percent fall in prices.

Northern summer shipping areas also have had sharply falling values, chiefly because of falling prices. Yields have been maintained fairly well. Although Intermediate values in California have been increasing, the average value per acre for the combined Intermediate shipping areas fell 32 percent between 1918-21 and 1937-40. Most of the decline in value per acre occurred in the Mid-Southern area, particularly in the Ozark part. The lower Northeastern area was also severely affected, with a relatively great decrease in Virginia. Values in Late 1 shipping areas also have fallen greatly, largely because of price rather than yield declines. Value per acre of Late 1 shipping areas fell 54 percent -- a greater decline than for any other group of shipping areas.

The Northeastern States show varied trends, although values in all these States decreased greatly. Delaware, New York, and Virginia values fell most; New Jersey and Maryland values also declined, but not so much.

Sources of Fresh-Tomato Supplies for Individual Markets

Large quantities of tomatoes are shipped to market from distant areas. In the winter season when local supplies cannot be grown in Northern areas, tomatoes are transported as much as 2,500 miles to Northern cities from California, Mexico, Florida, or Cuba. Only a few shipments are made in the summer when most local areas are able to produce their own supplies.

New York City imports tomatoes from Mexico, Cuba, and the West Indies, and draws domestic supplies from 20 States located in almost all regions except distant summer-producing areas (fig. 14). Most of the supply in summer comes from surrounding areas. In cold-weather months, when local production is impracticable, a great supply is shipped in from Florida, Cuba, Texas, California, and other areas; part of this supply is reshipped to nearby cities like Philadelphia and Boston.

Boston competes for most of its tomato supplies in the same areas as New York. It draws supplies from 20 States, and from Cuba and Mexico. Summer supplies are procured mostly from nearby market gardens; but in winter, spring, and fall when these supplies are not available, distant shipments arrive mostly from Florida and Texas. A large part of the Cuban supply for Boston is unloaded from boats in New York harbor and shipped by motor truck or rail to Boston.

Philadelphia secures most of its summer tomato supplies locally. In cold-weather months, supplies are shipped from the same areas that supply New York and Boston; in fact, some supplies arrive via New York City. Eighteen States, Cuba, and Mexico supply Philadelphia.

In general, when local Northeastern produce is available, few shipments to Northeastern cities are made from distant areas, but when local supplies are not available, these areas ship them in. Distance to Northern markets is an important factor determining the competitive advantage of an area in these markets. Thus, although California and Texas are important, Northeastern cities draw their winter supplies mostly from Eastern producing areas, like Florida and the Southern Seaboard States. Imported supplies arrive mostly from Cuba.

On the other hand, Chicago, which is located in the North Central area obtains most of its off-season tomato supplies from the more westerly areas of production. Although Chicago competes with Northeastern cities for Florida supplies California, Texas, Mississippi and Tennessee are relatively more important sources of supply than for the Northeastern cities. Southern Seaboard states pay a much smaller part in the Chicago market than in Northeastern markets. Imported supplies come mostly from Mexico. In all, supplies come to Chicago from 22 States, Mexico and Cuba.

New Orleans is located in the Southern winter-producing tomato area. It differs in climatic conditions from the cities discussed earlier and its sources of supply also differ. In the early spring, local Southern supplies are available. In winter and fall, the Southern area also furnishes supplies but from its more distant producing parts, and California and Cuba supplement these supplies. In summer, some distant shipments are made from areas in the North. Twenty-two States and Cuba supply the city.

The varied climate of California permits most of the San Francisco supply of tomatoes to be grown in California, regardless of season. Only three States and Mexico supply this city. Summer production comes chiefly from nearby market gardens while much of the supply in other seasons comes from the surplus production in Southern California, which is not of the proper quality for shipment to Eastern cities.

Competition in the New York Market

It has been argued that lower prices for Northeastern tomatoes have been caused largely by increased interregional competition. Has this been the case?

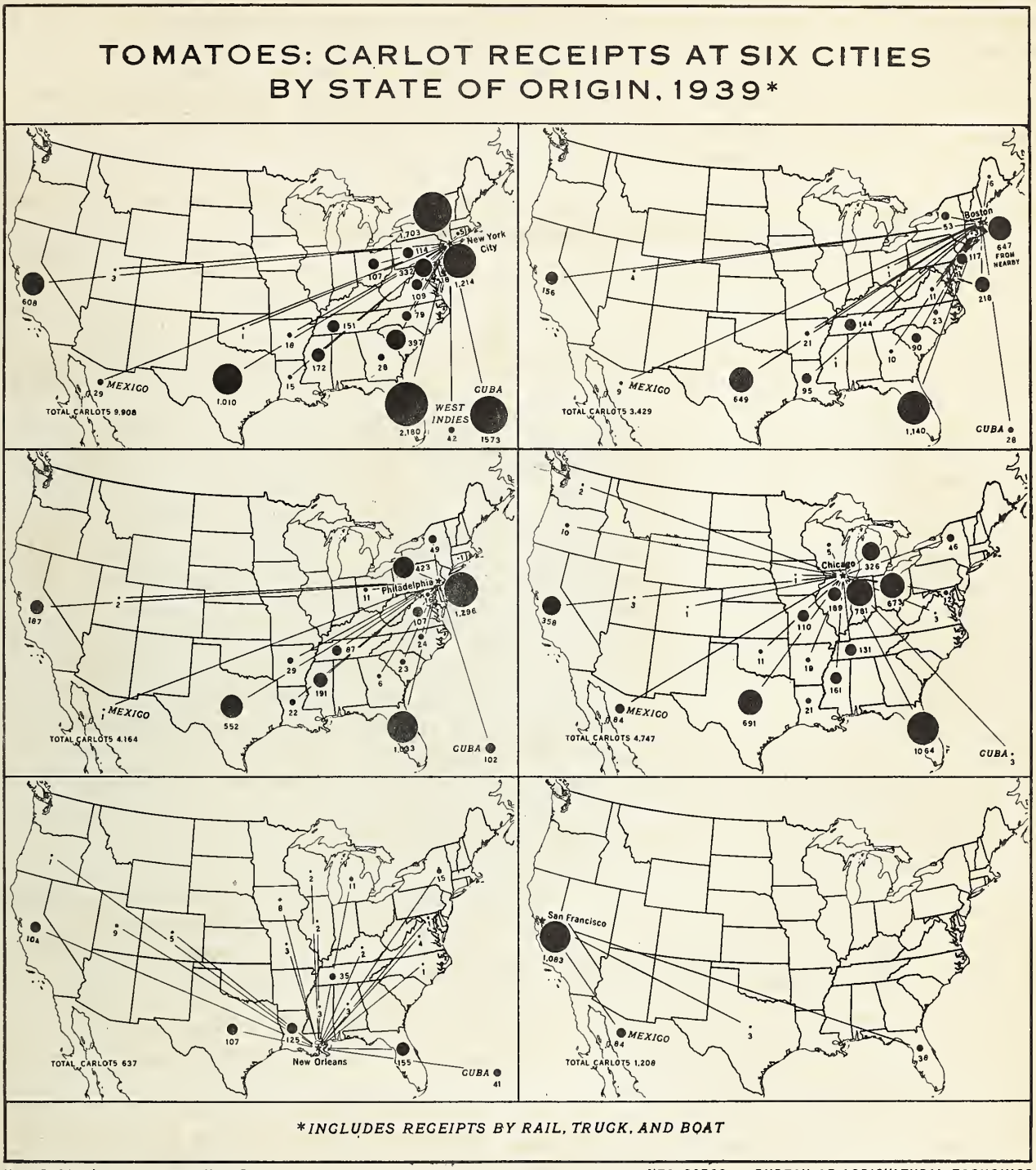

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FIGURE 14

Tomato unloads at New York City have been increasing over a long period, but they have shown no significant upward or downward trend 9/ since 1929 10/ (table 8). In the period 1929-40, the percentage of total unloads coming to New York City from five Northeastern States has remained relatively unchanged (table 9) 11/. In 1929, five Northeastern States shipped 30 percent of the tomatoes unloaded at the New York market; in 1940 they shipped 35 percent of the unloads. This would indicate that Northeastern competitive conditions have remained relatively constant in recent years.

Table 8.- Annual rail, boat and truck unloads 1/ of fresh tomatoes at New York City, Boston, and Philadelphia, 1929-40

Year	New York City	Boston	Philadelphia
	Rail cars	Rail cars	Rail cars
1929 2/	10,124	2,145	1,771
1930 2/	10,909	2,495	3,832
1931 2/	8,995	2,163	3,334
1932 2/	10,003	2,557	4,326
1933 2/	9,004	2,338	2,233 3/
1934 2/	8,767	2,909	2,169 3/
1935 4/	8,936	2,877	1,984 3/
1936 4/	9,337	3,017	3,941
1937 4/	8,596	3,280	3,898
1938 4/	10,406	3,729	4,385
1939 4/	9,908	3,429	4,164
1940 4/	10,302	2,817	3,877

1/ Boat and truck unloads reduced to equivelent rail cars.
2/ New York City unloads adjusted for Bronx Terminal unloads.
3/ Excluding truck unloads.
4/ New York City unloads include Bronx Terminal unloads.
Compiled from reports of the Agricultural Marketing Service.

9/ Boston and Philadelphia unloads have moved upward since 1929 (table 8).
10/ Market movement to surrounding secondary markets via New York City may have changed in this period. For example, New Haven may now buy more directly from producing areas instead of indirectly through New York. This direct purchasing is considered to be greater now than in previous years because of the greater use of trucks. If adjustments were made for this change, recent unload figures for New York City might be raised.
11/ Northeastern States have also shipped about the same percentage of Philadelphia fruit and vegetable unloads from 1930-39. In 1930, 42 percent of the total unloads of fruits and vegetables at Philadelphia came from Northeastern States; in 1939; 47 percent came from Northeastern States.

Table 9.- Adjusted 1/ fresh tomato unloads by rail, boat and truck 2/ at New York City by source and percentage unloaded by five Northeastern States, 1929-40.

Year	Unloads						Percentage
	Delaware	Maryland	New Jersey	New York	Pennsylvania	5-State total	Total unloads from all sources	5 State unloads are of total unloads
	Rail cars	Rail cars	Rail cars	Rail cars	Rail cars	Rail cars	Rail cars	Percent
1929	4	520	1,447	1,044	24	3,039	10,124	30
1930	9	329	1,789	1,424	23	3,574	10,909	33
1931	9	362	1,551	693	8	2,623	8,995	29
1932	23	460	1,815	861	47	3,206	10,033	32
1933	8	370	1,404	697	41	2,420	9,004	27
1934	9	291	1,542	890	61	2,793	8,767	32
1935	5	335	1,459	1,061	36	2,896	8,936	32
1936	4	354	1,672	1,407	30	3,467	9,387	37
1937	3	421	966	928	38	2,356	8,596	27
1938	8	357	1,028	1,396	94	2,883	10,504	27
1939	18	332	1,214	1,703	114	3,381	9,908	34
1940	10	589	1,168	1,610	194	3,571	10,302	35

1/ 1929-34 unloads adjusted for Bronx Terminal unloads; 1935-39 unloads include Bronx Terminal market unloads.
2/ Boat and truck unloads reduced to equivalent rail cars.
Compiled from reports of the Agricultural Marketing Service.

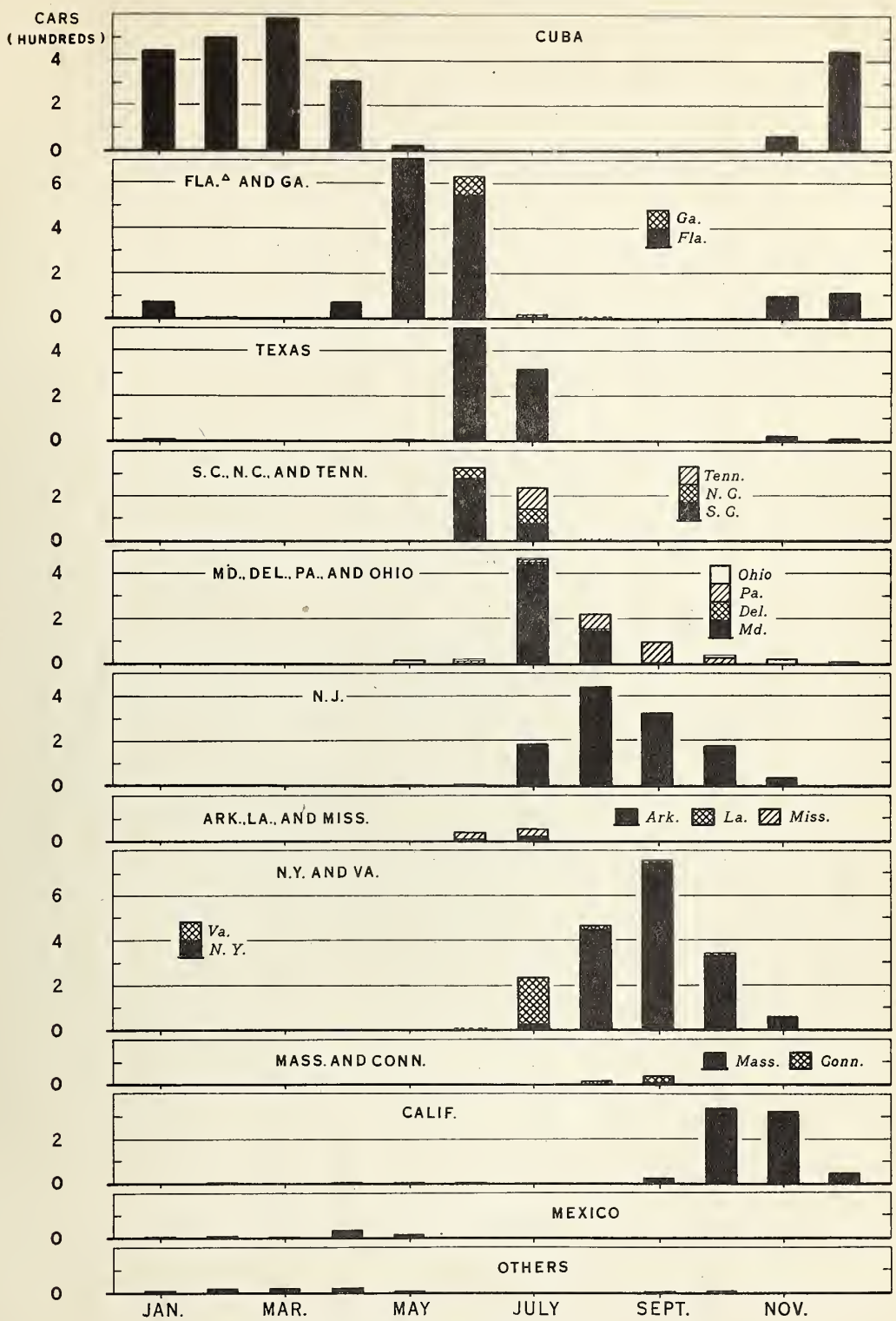
Table 10. - Adjusted rail, boat and truck unloads 1/ of fresh tomatoes at New York City by source, and percentage unloaded by five northeastern States for months of July, August, September, and October 1931-40

July August Septem-ber and October	Total of all unloads from all sources railcars	Deleware		Maryland		New Jersey		New York		Pennsylvania		5-State total	
		Rail cars	Percentage of total	Rail cars	Percentage of total	Rail cars	Percentage of total	Rail cars	Percentage of total	Rail cars	Percentage of total	Rail cars	Percentage of total
1931	4,153	9	.2	362	8.7	1,497	36.1	687	16.5	7	.2	2,563	61.7
1932	4,674	23	.5	459	9.8	1,811	38.7	843	18.0	27	.6	3,163	67.7
1933	3,610	8	.2	340	9.4	1,382	38.3	586	16.2	31	.9	2,347	65.0
1934	3,648	9	.3	277	7.6	1,518	41.6	920	25.2	54	1.5	2,778	76.2
1935	3,702	5	.1	334	9.0	1,443	39.0	1,046	28.3	26	.7	2,854	77.1
1936	4,215	4	.1	350	8.3	1,651	39.2	1,394	33.1	24	.6	3,423	81.2
1937	3,353	3	.1	415	12.4	958	28.6	921	27.5	34	1.0	2,331	69.5
1938	4,087	8	.2	345	8.4	1,017	24.9	1,384	33.9	93	2.3	2,847	69.7
1939	4,085	18	.4	309	7.6	1,172	28.7	1,631	39.9	106	2.6	3,236	79.2
1940	4,714	10	.2	588	12.5	1,127	23.9	1,553	32.9	188	4.0	3,466	73.5

1/ 1931-34 unloads adjusted for Bronx Terminal receipts. Boat and truck unloads reduced to equivalent rail cars.

Compiled from reports of the Agricultural Marketing Service.

RAIL, BOAT, AND TRUCK UNLOADS* OF FRESH TOMATOES, NEW YORK CITY, 1940



DATA FROM A.M.S. * REDUCED TO EQUIVALENT RAIL CARS

△ JAN.-APR. UNLOADS REDUCED BY FREEZE

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FIGURE 15

Table 11. - Sources of rail, boat, and truck unloads 1/ of fresh tomatoes at New York City, July, August, September and October, 1939

Source	July		August		September		October		4 Months	
	Rail cars	Percentage of total	Rail cars	Percentage of total	Rail cars	Percentage of total	Rail cars	Percentage of total	Rail cars	Percentage of total
Maryland	300	26.2	9	.8	--	--	--	--	309	7.7
New Jersey	255	22.2	541	45.1	224	25.4	152	17.7	1,172	29.3
New York	56	4.9	590	49.1	618	70.1	367	42.8	1,631	40.7
Total 3 States	611	53.3	1,140	95.0	842	95.5	519	60.5	3,112	77.7
Other sources	535	46.7	60	5.0	39	4.5	339	39.5	893	22.3
Total all sources	1,146	100.0	1,200	100.0	881	100.0	858	100.0	4,005	100.0

1/ Boat and truck unloads reduced to equivalent rail cars.

Compiled from reports of the Agricultural Marketing Service.

This is emphasized by the seasonal nature of fresh-tomato production. In winter and spring unloads arrive at New York City from Cuba, Florida, and Texas (fig. 15). These areas compete with each other because they market their tomatoes at the same time. In fall, California adds to these supplies. But in summer New Jersey, New York, Pennsylvania, and Maryland provide the main competing sources of supply and no shipments are made from the South. Although some overlapping of Southern spring supplies occurs with the early shipments from the Northeast, there is little indication that winter supplies compete to any great extent with Northeastern summer supplies.

Unloads at New York were analyzed for the 4-month summer season (July, August, September, and October) in which most Northeastern production takes place (table 10). In this season Northeastern production practically commanded the market. In the 4 summer months, Maryland, Delaware, Pennsylvania, New York, and New Jersey usually provided between 60-80 percent of the supply of tomatoes for New York City.

August and September showed practically complete market domination by Northeastern producers (table 11). In August 1939, 95 percent of unloads at New York City came from New York, Maryland, and New Jersey. In September, 95.5 percent came from these States. August and September are the peak months of Northeastern production.

The great declines in the price of Northeastern fresh tomatoes, which took place after 1929, were apparently not caused to any great extent by increased competition from other areas. Depressed business conditions and increased production in the Northeast itself were more influential factors.

TRENDS IN TOMATOES FOR PROCESSING BY AREAS

The larger part of the United States commercial tomato crop is used for processing. About 65 percent of the total tonnage produced is converted into canned whole tomatoes, soups, paste, puree, juice, and other preparations. In general, the trend for processing use has been upward. In periods of depression, however, when prices and consumption are low, the crop for processing is relatively small. Accumulated stocks are liquidated and a smaller new crop supply is required.

In the season 1940-41 the canning crop was utilized in the following way: Approximately 39 percent was used for canned whole tomatoes, 14 percent for juice, and 3 percent for pulp. The remaining 44 percent was processed into other miscellaneous tomato products.

Most processing tomatoes are grown in the Northern areas and in California (fig. 16). Production is concentrated in the middle North Central, lower Northeastern, Ozark, and California areas and, to a lesser extent, in sections of the Mid-Southern and Utah-Colorado areas. With the exception of California, these are the summer producing areas, where yields are high, and costs and prices of market tomatoes are low. Relatively little processing takes place in the winter-producing Southern area.

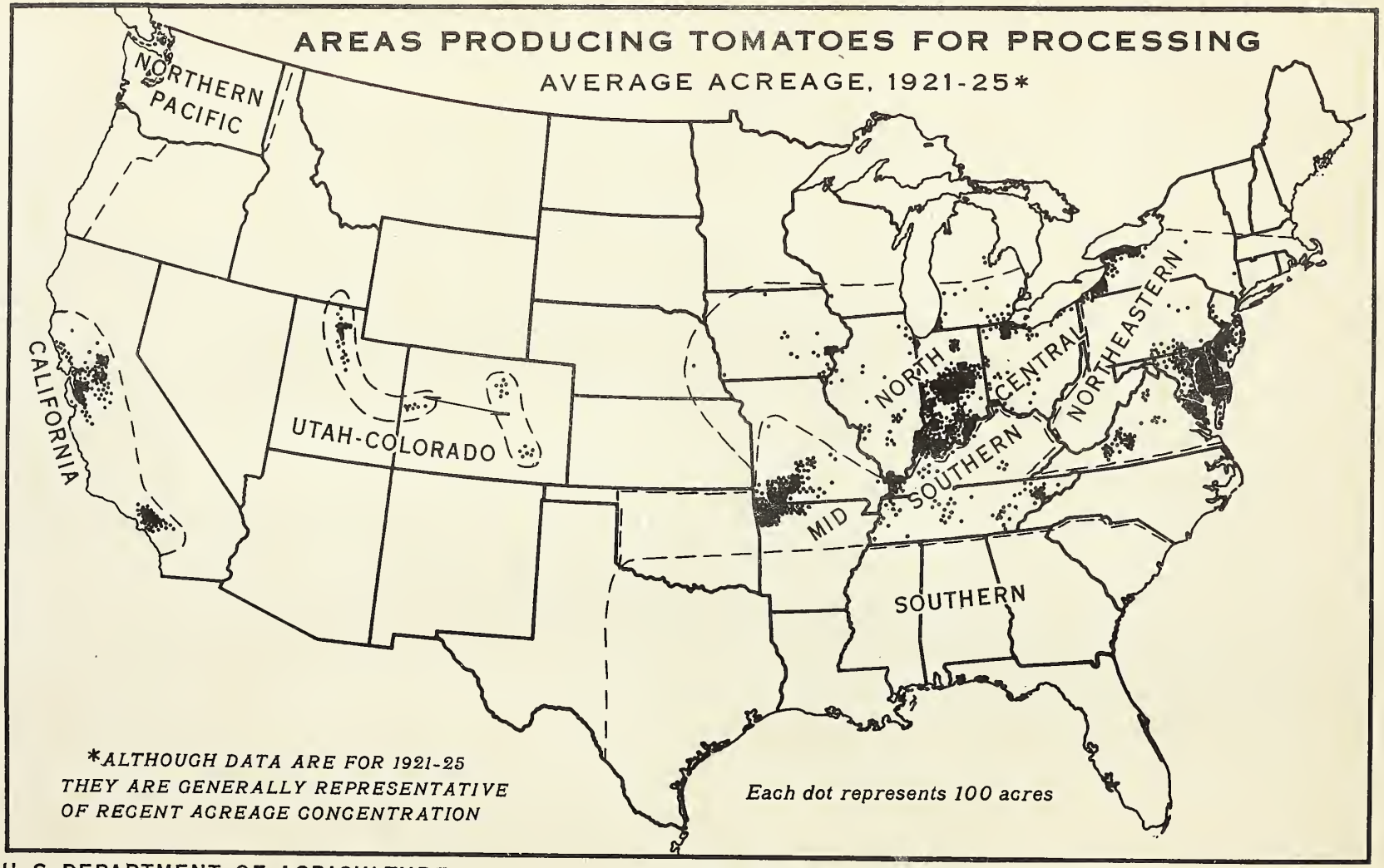

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FIGURE 16

Compared with other areas, the Northeast has the largest production of processing tomatoes. In 1937-40 it contributed 36 percent of total U. S. production. The North Central area was next in importance, followed by California, the Mid-Southern and the Utah-Colorado areas. Other areas contributed only 4 percent to the total production in the United States.

Acreage Trend Is Upward

Acreage for growing processing tomatoes has increased since the middle of the nineteenth century. The first impetus to expansion came from the discovery and commercial development of the canning process. Whole tomatoes were among the first products to be canned. Recent expansion has come largely from new uses, such as tomato juice. Increasing population and other influences have also tended to encourage expansion. Data that are available for recent years show a continued rising acreage trend. Some setbacks have occurred during depression periods. In the post-war depression years of 1921-23, for example, acreage fell 32 percent compared with 1918-20. Similarly, in 1931-33 acreage fell 15 percent compared with 1928-30. Yet U. S. acreage increased 37 percent between 1918-20 and 1937-40. (Table 12).

Table 12.- Harvested acreage and change in harvested acreage of commercial crop of tomatoes for processing, by areas and for six Northeastern States, average 1918-20 1/ and 1937-40 2/

Area and State	Average acreage		Change	
	1918-20	1937-40		
	Acres	Acres	Acres	Percent
California	39,263	63,288	+ 24,025	+ 61
Utah-Colorado	7,440	9,257	+ 1,817	+ 24
Mid-Southern 3/	33,540	36,325	+ 2,785	+ 8
North Central 4/	61,671	114,125	+ 52,454	+ 85
Six Northeastern States	143,296	152,475	+ 9,179	+ 6
Delaware	22,416	9,800	- 12,616	- 56
Maryland	61,120	52,475	- 8,645	- 14
New Jersey	22,807	32,425	+ 9,618	+ 42
New York	12,820	19,250	+ 6,430	+ 50
Pennsylvania	2,770	17,050	+ 14,280	+516
Virginia	21,363	21,475	+ 112	+ 1
Other States 5/	3,733	21,415	+ 17,682	+474
United States	288,943	396,885	+107,942	+ 37

1/ Conditions in the processing industry were unusual in 1921, so this year was omitted in drawing comparisons with 1937-40.
2/ 1940 preliminary.
3/ Includes Arkansas, Kentucky, Missouri, and Tennessee.
4/ Includes Illinois, Indiana, Iowa, Michigan, and Ohio.
5/ Includes Alabama, Connecticut, Florida, Georgia, Idaho, Kansas, Louisiana, Minnesota, Mississippi, Nebraska, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Texas, Washington, West Virginia, and Wisconsin.
Compiled from reports of the Agricultural Marketing Service.

This increase has not been evenly distributed. Some areas have experienced markedly different changes than others. California acreage increased 61 percent between 1918-20 and 1937-40. On the other hand, Utah-Colorado acreage increased only 24 percent in the same period. In the Mid-Southern area acreage moved upward in the period 1918-30, but began to decline sharply in 1931. Between 1918-20 and 1937-40, Mid-Southern acreage showed a net increase of only 8 percent, although from 1918-20 to 1924-30, it had increased 85 percent. In the North Central area, acreage increased greatly. Between 1918-20 and 1937-40 it increased 85 percent. In scattered decentralized sections located in all areas a very sharp increase of acreage occurred, amounting to 474 percent.

Acreage in six Northeastern States increased only 6 percent compared with the increase of 37 percent for total U. S. acreage between 1918-20 and 1937-40. Most of this increase occurred in Pennsylvania acreage, which jumped 516 percent. New York acreage rose 50 percent, New Jersey acreage 42 percent, and Virginia acreage only 1 percent. Delaware acreage decreased 56 percent, and Maryland acreage decreased 14 percent.

The Yield Trend

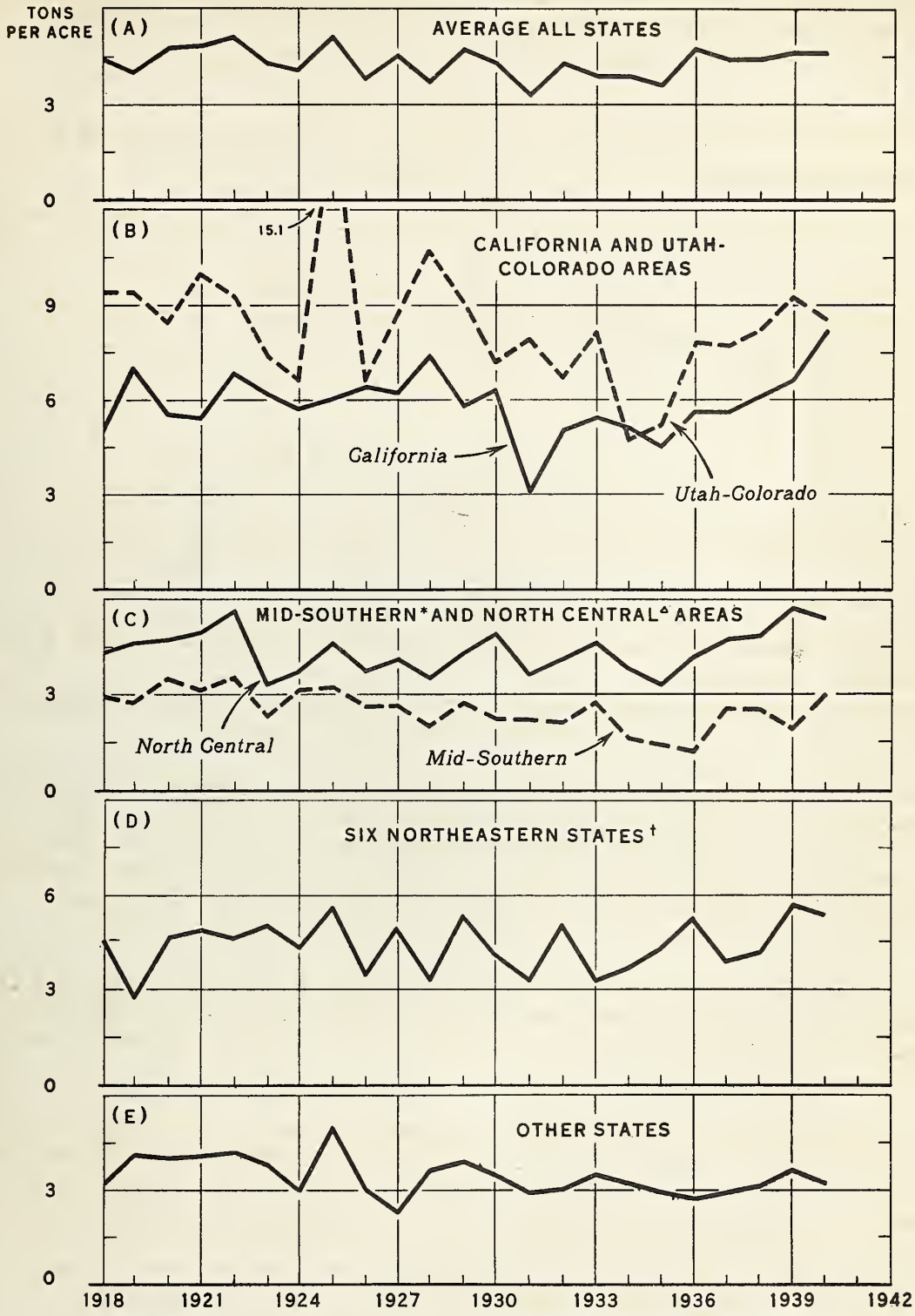
Highest yields per acre for processing tomatoes are obtained in the Utah-Colorado area (fig. 17). Compared with the 4.9 ton per acre average yield for the United States in 1937-40, the average yield in the Utah-Colorado area was 8.1 tons per acre. California ranked next with 6.3 tons. In contrast, yields in the Mid-Southern area averaged only 2.5 tons, or less than one-third the yield in the Utah-Colorado area and about one-half of the average United States yield. In the North Central area, yields were slightly above average, at 5.2 tons to the acre; Ohio and Michigan had the highest yields in this area, and Illinois and Iowa the lowest.

In six Northeastern States the average yield of 4.6 tons for 1937-40 was slightly below the United States average, but a wide range existed within this area. New York yields were highest at 7.9 tons per acre and Virginia yields were lowest at 3.2 tons per acre. Pennsylvania yields averaged 5.7 tons to the acre, New Jersey yields 5.2 tons, Delaware averaged 3.5 tons, and Maryland 3.6 tons.

In general, yields in the middle Northeastern States - Pennsylvania, New York, and New Jersey - compare favorably with yields in other areas. On the other hand, yields in the lower Northeastern areas - Delaware, Maryland, and Virginia, - do not.

In contrast to the declining yield trend for fresh tomatoes in the United States, the yield for processing tomatoes has been maintained. The yield of processing tomatoes declined in the depression years of 1931-33 but in many areas loss of yield was either partially or fully restored in recent years. The average processing yield for the United States as a whole increased 11 percent between 1918-20 and 1937-40 (table 13).

YIELD PER ACRE OF TOMATOES FOR PROCESSING, BY AREAS AND FOR SIX NORTHEASTERN STATES, 1918-40



DATA FROM A. M. S.

△ INCLUDES ILL., IND., IOWA, MICH., AND OHIO.

* INCLUDES ARK., KY., MO., AND TENN.

† INCLUDES N. J., N. Y., MD., PA., DEL., AND VA.

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FIGURE 17

Table 13.- Yield 1/ per acre and change in yield per acre of commercial crop of tomatoes for processing, by areas and for six Northeastern States, averages 1918-20 2/ and 1937-40 3/

Area and State	Yield per acre		Change	
	1918-20	1937-40		
	Tons	Tons	Tons	Percent
California	5.9	6.3	+ .4	+ 7
Utah-Colorado	9.1	8.1	-1.0	-11
Mid-Southern 4/	3.1	2.5	- .6	-19
North Central 5/	4.5	5.2	+ .7	+16
Six Northeastern States	3.9	4.6	+ .7	+18
Delaware	3.3	3.5	+ .2	+ 6
Maryland	3.6	3.6	0	0
New Jersey	4.3	5.2	+ .9	+21
New York	7.3	7.9	+ .6	+ 8
Pennsylvania	4.5	5.7	+1.2	+27
Virginia	3.2	3.2	0	0
Other States 6/	3.8	3.2	- .6	-16
United States	4.4	4.9	+ .5	+11

1/ Harvested yield.
2/ Conditions in the processing industry were unusual in 1921 so that this year was omitted in drawing comparisons with 1937-40.
3/ 1940 preliminary.
4/ Includes Arkansas, Kentucky, Missouri, and Tennessee.
5/ Includes Illinois, Indiana, Iowa, Michigan, and Ohio.
6/ Includes Alabama, Connecticut, Florida, Georgia, Idaho, Kansas, Louisiana, Minnesota, Mississippi, Nebraska, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Texas, Washington, West Virginia, and Wisconsin.
Compiled from reports of the Agricultural Marketing Service.

The trend in yields may be shown by comparing the periods, 1918-20 and 1937-40. Between these periods, the California yield increased 7 percent and Utah-Colorado yields decreased 11 percent, most of the decrease occurring in Colorado.

In almost all parts of the Mid-Southern area yields have shown a decided downward trend. Between 1918-20 and 1937-40 the average yield here decreased 19 percent. The decline was particularly marked during the drought years of 1934-36. On the other hand, in the North Central area, yields have been maintained in recent years. Although they declined somewhat during 1934-36 because of the drought, they show an increase of 16 percent between 1918-20 and 1937-40. Illinois, Michigan, and Ohio contributed most to this increase.

In the Northeastern States, yields have been maintained. During the period between 1918-40 yields increased in Pennsylvania, New York and in New Jersey. They have been slightly lower in Delaware, Virginia and Maryland. The combined yield for the Northeastern States increased 18 percent between 1918-20 and 1937-40.

Despite the rising acreage trend which, sometimes because of the utilization of inferior land, results in lower yields, average United States yields have been maintained. Several factors have contributed: on the one hand, much of the acreage expansion occurred in high-yield areas, such as California; on the other hand, acreage declines occurred in low-yield areas, such as the Mid-Southern area. Similarly, average yields in the Northeastern States were also maintained because greatest acreage expansion occurred in high-yield areas, such as New York and Pennsylvania. Another reason for the maintained yields may be the relative stability of processing prices. As noted, firm prices generally have a stabilizing effect on yields.

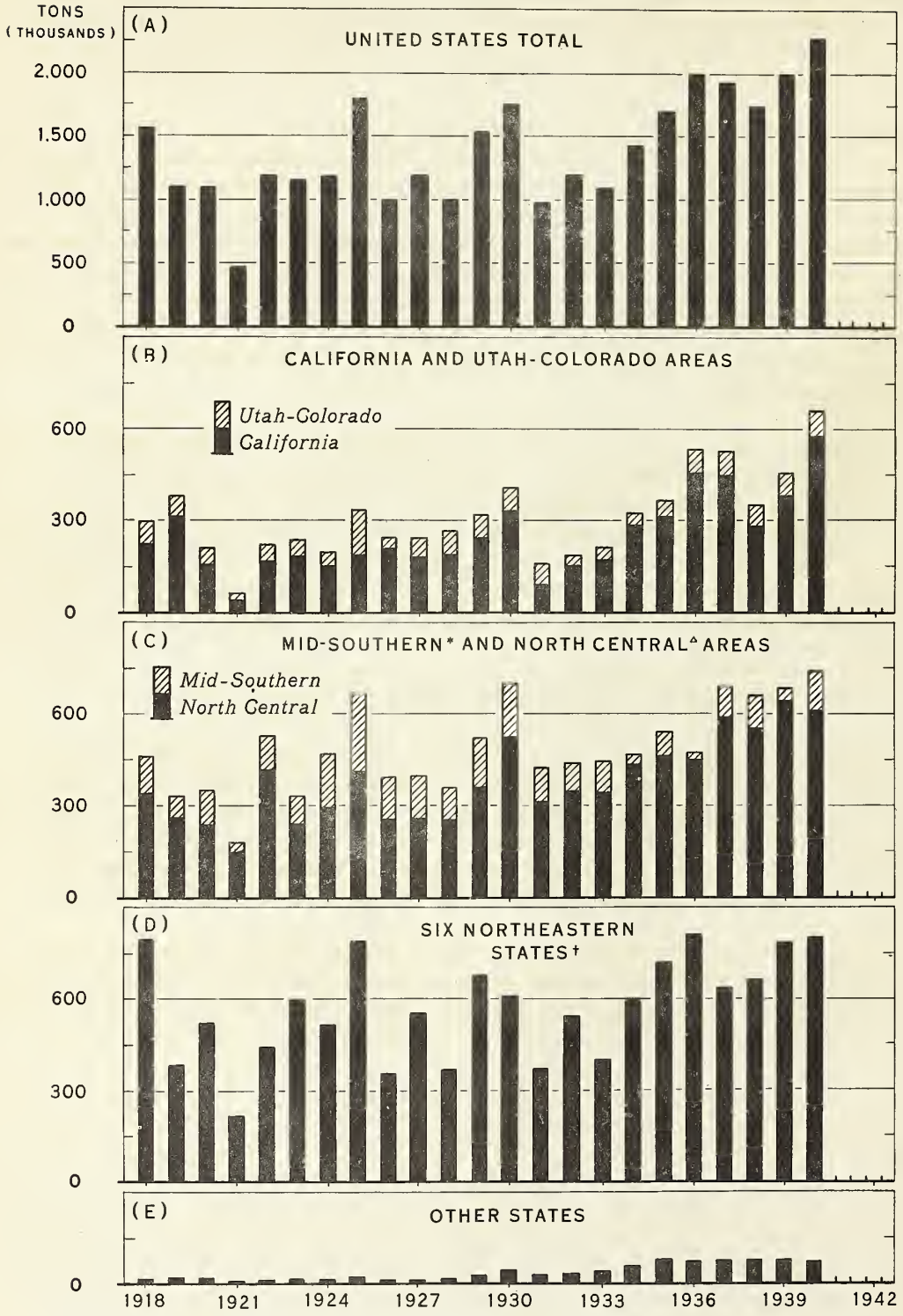
An acreage increase in a given area may not mean that poorer grades of land with lower yields have been used. In some areas both yields and acreage increased,, as in California. The reason may be found in the price position of processing tomatoes compared with other crops in the area. A favorable price position for tomatoes may have induced shifts from other crops to tomatoes. Thus "new" land in tomato production would not necessarily be poor land. Furthermore, improved growing conditions or methods in an area may also raise yields on an increased acreage.

Production Trend Is Upward

The Northeastern area ranks first in processing production, followed by the North Central area, California, and the Mid-Southern area (fig. 18). The States producing processing tomatoes ranked in the following order of production in 1937-40: California, Indiana, Maryland, New Jersey, New York, Ohio, Pennsylvania, Virginia and Utah. These 8 States produced an average of 1,603,450 tons, or 83 percent of the average annual United States production for the 1937-40 period.

Because of greater acreage and maintained yields, the production of processing tomatoes in the United States has moved upward. Data available since 1918 show an increase of 54 percent in 1937-40 over the production of 1918-20 (table 14).

PRODUCTION OF TOMATOES FOR PROCESSING, BY AREAS AND FOR SIX NORTHEASTERN STATES, 1918-40



DATA FROM A. M. S. * INCLUDES ARK., KY., MO., AND TENN. ^ INCLUDES ILL., IND., IOWA, MICH., AND OHIO
† INCLUDES N. J., N. Y., MD., PA., DEL., AND VA. DATA FOR 1940 ARE PRELIMINARY

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FIGURE 18

Table 14.- Production and change in production of commercial crop of tomatoes for processing, by areas and for six Northeastern States, average 1918-20 1/ and 1937-40 2/

Area and State	Average production		Change	
	1918-20	1937-40		
	Tons	Tons	Tons	Percent
California	231,000	401,825	+170,825	+ 74
Utah-Colorado	67,500	75,350	+ 7,850	+ 12
Mid-Southern 3/	102,333	92,350	- 9,983	- 10
North Central 4/	278,533	591,900	+313,367	+113
Six Northeastern States	565,400	706,250	+140,850	+ 25
Delaware	74,067	34,700	- 39,367	- 53
Maryland	218,900	187,100	- 31,800	- 15
New Jersey	97,567	167,475	+ 69,908	+ 72
New York	93,733	151,375	+ 57,642	+ 61
Pennsylvania	12,433	97,675	+ 85,242	+686
Virginia	68,700	67,925	- 775	- 1
Other States 5/	14,167	69,550	+ 55,383	+391
United States	1,258,933	1,937,225	+678,292	+ 54

1/ Conditions in the processing industry were unusual in 1921 so that this year was omitted in drawing comparisons with 1937-40.
2/ 1940 preliminary.
3/ Includes Arkansas, Kentucky, Missouri, and Tennessee.
4/ Includes Illinois, Indiana, Iowa, Michigan and Ohio.
5/ Includes Alabama, Connecticut, Florida, Georgia, Idaho, Kansas, Louisiana, Minnesota, Mississippi, Nebraska, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Texas, Washington, West Virginia, and Wisconsin.
Compiled from reports of the Agricultural Marketing Service.

Production trends in different areas have not been uniform. California production increased 74 percent between 1918-20 and 1937-40. Utah-Colorado production increased only 12 percent, most of this increase occurring in Utah.

Production in the North Central area increased greatly. It rose 113 percent between 1918-20 and 1937-40, practically all States in this region sharing the increase.

Contrasted to increases in all other areas, production in the Mid-Southern area fell 10 percent between 1918-20 and 1937-40. Production decreased mostly in Missouri and Kentucky; it increased in Arkansas.

In general, the Northeastern States have not increased production in proportion to many other areas. Production in six Northeastern States increased only 25 percent between 1918-20 and 1937-40, compared with the 54 percent increase in total production for the United States. Much of this 25 percent increase was caused by higher yields. Production in the upper Northeastern States increased greatly. Pennsylvania increased production 686 percent, New Jersey 72 percent, and New York 61 percent. In the lower Northeastern States, however, production decreased. Delaware production fell 53 percent, Maryland decreased 15 percent, and Virginia production 1 percent.

A trend toward decentralization of production is indicated by an increase of 391 percent in production for many scattered sections located in all areas.

Although most areas show an upward production trend over a period of time, practically all have decreased processing production in low-priced depression periods. United States processing production declined 26 percent in 1921-23 as compared to 1918-20. Similarly, in 1931-33 it declined 20 percent as compared to 1924-30. In contrast, fresh production has been maintained in depression years. The difference in behavior is caused by the difference in the marketing systems employed for fresh and processing tomatoes. Fresh tomatoes are produced for a future market, the characteristics of which are not clear. Producers cannot judge demand and prices with certainty, and they usually chance a full crop. On the other hand, canners contract in advance for a large part of the output of processing tomatoes. If demand and prices are low, fewer contracts are made, and production decreases.

Factors Affecting Production Trends of Areas.

Several factors appear to be influencing the trends of processing tomato production in the different areas. The first of these factors is yield. Production appears to have expanded most in areas of high yield and to have declined principally in areas that have low yields. A second factor is proximity to consuming areas. Transportation economies arising from location are partly responsible for the trend toward decentralization of production. This decentralization is illustrated by the sharply increased production in scattered sections far from the established commercial sections of production. A third factor is quality. The demand for quality and specialty production creates a special market for certain grades and types of tomatoes. This has been particularly true since the outbreak of the present war because of the curtailment of imported specialty products.

These factors seem to have placed the Mid-Southern area in a less promising position compared to other major producing areas. Yields are low, and much of the product must be transported to fairly distant markets. In California, on the other hand, yields are high and of good quality. The tomatoes are largely canned as specialty products, and high prices are received. Although tomato products from California must be shipped great distances, production has increased. In the North Central area, yields have been fairly high and markets are close to producing areas. Production has increased. In all areas, scattered sections which are favorably located near markets have shown a very sharp increase in production, despite low yields.

In the upper sections of the Northeastern States yields are high and prime markets are near. Production has increased. In the lower Northeastern States lower yields are prevalent and production has decreased. Yet for the Northeastern area as a whole, yields and prices are fairly high. Large markets are near and most production is for local use. However, markets for surplus Northeastern production have been adversely affected by the increase of production in other areas. Because of this, the Northeast has gradually become a proportionately less important producing area in the past few decades; This and other factors have contributed to the sharp fall of Northeastern prices in recent years.

The Price Trend

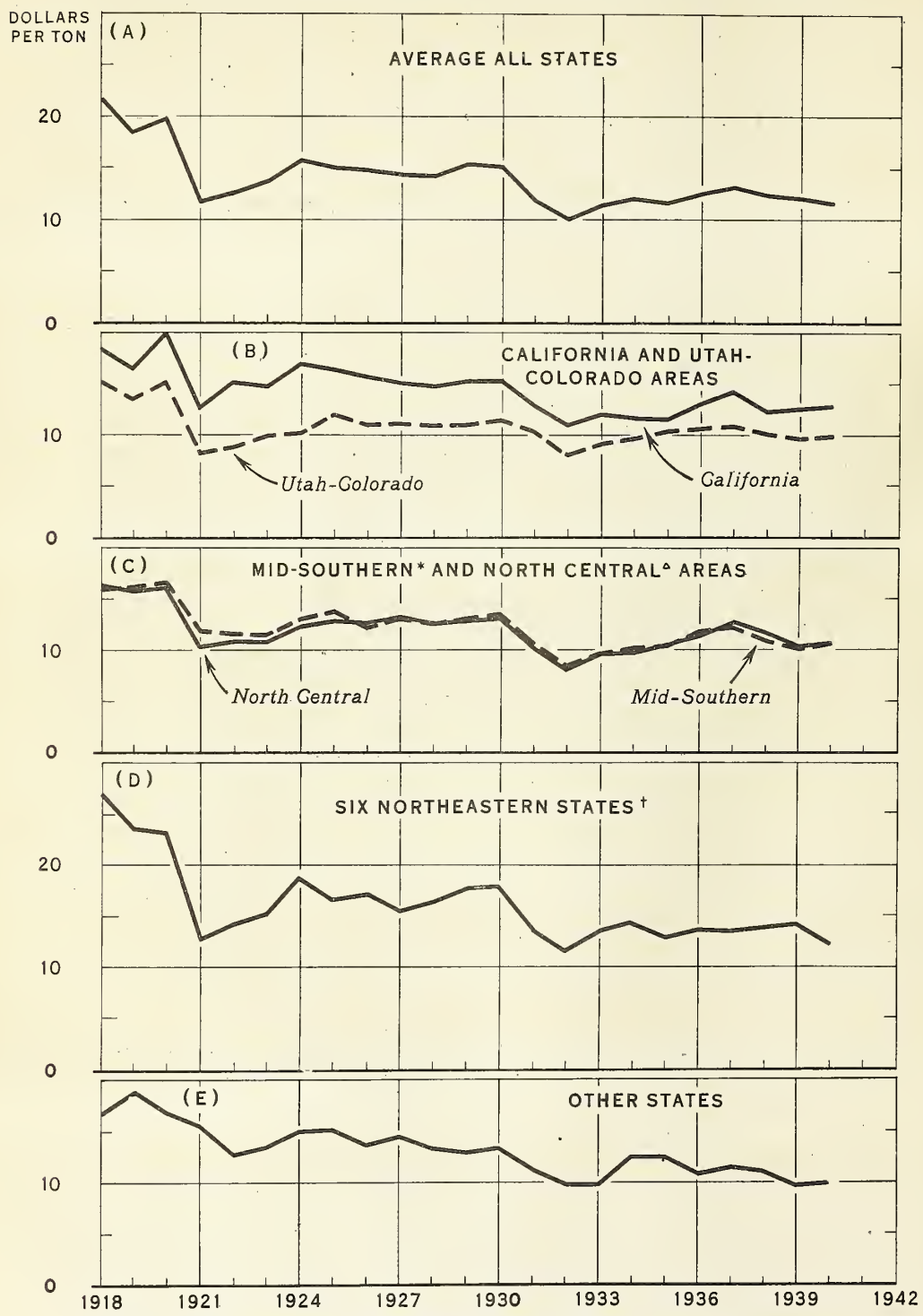
Farm price differentials for processing tomatoes, in the different areas, though smaller than for fresh tomatoes, are significant. Average 1937-40 prices ranged from $10.12 per ton in the Utah-Colorado area to $13.35 per ton in the six Northeastern States. Highest prices for the processing crop are received in the upper Northeastern States and in California (fig. 19). Utah-Colorado prices are lowest. The Mid-Southern and North Central areas have below-average prices. Prices are highest in areas that produce near large markets or that produce high quality and special types of tomatoes.

Because seasonal supplies do not figure largely in processing production, processing prices have little seasonal variation. Processing acreage is usually contracted at a given price for the entire season. Such relatively small price fluctuations as do occur, in ordinary years, are caused primarily by changes in the prices of uncontracted tomatoes. Sharp fluctuations that occur in extraordinar years are caused more by unusual market conditions than by "seasonal" conditions. For example, in August 1932 the average price of tomatoes for manufacture in New Jersey was $15.90 per ton; in October of the same year it fell to $10 per ton. This was a result of chaotic market conditions that forced many manufacturers out of business and made others reluctant to process tomatoes in a falling price market

Like many other farm prices, the price of processing tomatoes fell greatly in the post-war period because of the disappearance of war demand 12/. Average U. S. prices for processing tomatoes fell 37 percent between 1918-20 and 1921-23. After 1923, however, processing prices were relatively firm, particularly when compared with prices for fresh tomatoes in most areas and to general farm prices. They rose 16 percent between 1921-23 and 1924-30, fell only 24 percent in 1931-33, and then recovered 12 percent by 1937-40. The net decline was 39 percent between 1918-20 and 1937-40 (table 15).

12/ Fresh tomato prices did not fall as greatly in this period.

PRICE RECEIVED BY FARMERS FOR TOMATOES FOR PROCESSING, BY AREAS AND FOR SIX NORTHEASTERN STATES, 1918-40



DATA FROM A.M.S.

△ INCLUDES ILL., IND., IOWA, MICH., AND OHIO

DATA FOR 1940 ARE PRELIMINARY

* INCLUDES ARK., KY., MO., AND TENN.

† INCLUDES N.J., N.Y., MD., PA., DEL., AND VA.

U. S. DEPARTMENT OF AGRICULTURE

NEG. 39723 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 19

Table 15.- Farm price per ton and change in farm price of commercial crop to tomatoes for processing, by areas, and for six Northeastern States, average 1918-20 1/ and 1937-40 2/

Area and State	Price per ton		Change	
	1918-20	1937-40		
	Dollars	Dollars	Dollars	Percent
California	17.71	13.03	- 4.68	-26
Utah-Colorado	14.48	10.12	- 4.36	-30
Mid-Southern 3/	16.20	11.15	- 5.05	-31
North Central 4/	16.00	11.34	- 4.66	-29
Six Northeastern States	24.80	13.35	-11.45	-46
Delaware	25.15	13.22	-11.93	-47
Maryland	26.66	12.61	-14.05	-53
New Jersey	25.80	15.27	-10.53	-41
New York	20.11	12.31	- 7.80	-39
Pennsylvania	22.57	14.38	- 8.19	-36
Virginia	23.86	11.57	-12.29	-52
Other States 5/	17.51	10.33	- 7.18	-41
United States	20.22	12.33	- 7.89	-39

1/ Conditions in the processing industry were unusual in 1921 so that this year was omitted in drawing comparisons with 1937-40. Prices in 1918-20 were somewhat inflated but these years were the earliest years for which data were available.
2/ 1940 preliminary.
3/ Includes Arkansas, Kentucky, Missouri, and Tennessee.
4/ Includes Illinois, Indiana, Iowa, Michigan, and Ohio.
5/ Includes Alabama, Connecticut, Florida, Georgia, Idaho, Kansas, Louisiana, Minnesota, Mississippi, Nebraska, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Texas, Washington, West Virginia and Wisconsin.
Compiled from reports of the Agricultural Marketing Service.

Compared with the sharply different trends by areas for fresh-tomato prices, trends for processing prices by areas have not varied nearly so greatly. Between 1918-20 and 1937-40, California prices fell 26 percent and Utah-Colorado prices 30 percent. Between 1924-30 and 1937-40, the decline for California was 16 percent and for the Utah-Colorado area 10 percent.

In the Mid-Southern area prices fell 31 percent between 1918-20 and 1937-40 and 15 percent between 1924-30 and 1937-40, Tennessee prices falling most sharply. In the North Central area, prices fell 29 percent between 1918-20 and 1937-40 and 11 percent between 1924-30 and 1937-40. Prices in Iowa were firm.

Although prices followed fairly uniform trends in all areas, Northeastern prices declined more than prices in other areas. Between 1918-20 and 1937-40, average prices in six Northeastern States declined 46 percent, compared with the decline of 39 percent for the U. S. average price. Similarly between 1924-30 and 1937-40, Northeastern prices fell 22 percent, compared with a fall of 17 percent for the U. S. average price. Prices in the lower Northeastern States declined most. In Maryland and Virginia prices fell 22 percent between 1924-30 and 1937-40. Delaware prices fell 19 percent. On the other hand, prices did not fall as much as in the upper Northeastern States. Between 1924-30 and 1937-40, prices fell 4 percent in Pennsylvania and 21 percent in New York and New Jersey.

Tomato prices are affected by many general economic factors that have caused all other prices to change. Falling prices for tomatoes cannot be explained solely by conditions within the tomato industry itself. For example, demand conditions, such as the expansion of purchasing power of the 1920's or the decline of purchasing power of the 1930's, were influential in causing high prices in the former period and low prices in the latter period. Similarly demand for tomatoes has been at low ebb in many recent periods because of lack of purchasing power despite the favorable factors of increased population and the increase in the use of vegetables in the diet.

The relationship of supply to prices in the processing-tomato industry is not the usual supply-price relationship that is found for most agricultural commodities, including fresh tomatoes. Supply has no doubt influenced processing-tomato prices, but the mechanics of an inverse supply-price relationship do not operate in the tomato-canning industry. The supply and price of processing tomatoes generally decrease at the same time. This is caused by the contract system used in buying canning tomatoes. Canners contract at a price for the processing crop before production takes place, and farmers are able to adjust production to this price. When production needs are great, higher prices must be offered to induce more production. Canners are in a less favorable bargaining position. On the other hand, when demand is low, canners need fewer tomatoes. They are in a more advantageous bargaining position and can offer contracts at lower prices. Thus for a smaller supply, lower prices can be paid. Consequently, supply varies directly with price in the tomato canning industry. However, a greater or smaller supply of tomatoes than can be grown if needed will no doubt affect price. Therefore, although an inverse supply-price relationship is not discernible in the tomato canning industry, an inverse relationship does exist between potential supply and price.

In contrast to this system of contracting, the open-market system is prevalent for fresh tomatoes. Fresh producers must attempt to appraise a future market. They cannot adjust their plantings accurately to future prices and demand. When many tomatoes are produced, prices generally fall and when the crop is short, prices rise.

Trend of Value Per Acre

The range in value per acre between different producing areas is wide. In 1937-40 values ranged from $28 per acre in the Mid-Southern area to $83 per acre in California (table 16). Within this range, the Utah-Colorado value of $82 came next to that of California. The Northeastern area had an average value of $62 and the North Central area a value of $59. The United States average valuo was $60.

Table 16.- Value per acre and change in value per acre of commercial crop of tomatoes for processing, by areas, and for six Northeastern States, average 1918-20 1/ and 1937-40 2/

Area and State	Value per acre		Change	
	1918-20	1937-40		
	Dollars	Dollars	Dollars	Percent
California	104	83	-21	-20
Utah-Colorado	132	82	-50	-38
Mid-Southern 3/	50	28	-22	-44
North Central 4/	72	59	-13	-18
Six Northeastern States	97	62	-35	-36
Delaware	83	47	-36	-43
Maryland	96	45	-51	-53
New Jersey	111	79	-32	-29
New York	147	97	-50	-34
Pennsylvania	102	82	-20	-20
Virginia	76	37	-39	-51
Other States 5/	67	34	-33	-49
United States	89	60	-29	-33

1/ Conditions in the processing industry were unusual in 1921 so that this year was omitted in drawing comparisons with 1937-40. Values in 1918-20 were somewhat inflated but these were the earliest years on which data were available.
2/ 1940 preliminary.
3/ Includes Arkansas, Kentucky, Missouri and Tennessee.
4/ Includes Illinois, Indiana, Iowa, Michigan and Ohio.
5/ Includes Alabama, Connecticut, Florida, Georgia, Idaho, Kansas, Louisiana, Minnesota, Mississippi, Nebraska, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Texas, Washington, West Virginia, and Wisconsin.
Compiled from reports of the Agricultural Marketing Service.

Low yields in the Mid-Southern area were primarily responsible for the low value per acre in this area, while in California both high yields and prices resulted in high values. The high values in the Utah-Colorado area were caused by high yields as prices there were low compared with prices in other areas. In the North Central areas, yields and prices were slightly below the United States average. The resulting value per acre was also slightly below the United States average.

In the six Northeastern States fairly high prices and yields about equal to the United States average caused values to be slightly above the United States average. However, a wide range existed within the Northeastern States. Value per acre in the lower Northeastern States was not so great as in the upper Northeastern States because of lower yields and prices. Virginia values averaged only $37 per acre in 1937-40, compared with $45 in Maryland and $47 in Delaware. In the upper Northeastern States, New York was highest at $97 per acre, followed by Pennsylvania at $82 and New Jersey at $79.

Since yields were fairly maintained in most areas, the decrease of 33 percent in the United States average value per acre for the period between 1918-20 and 1937-40 13/ was due chiefly to the decline in prices.

The decline in value per acre occurred in all areas. California and the North Central areas were least affected of all because price decreases were offset by an increase in yield per acre. Between 1918-20 and 1937-40, value per acre for California declined only 20 percent. In the Utah-Colorado area, values declined much more than in California because of lower yields. Between 1918-20 and 1937-40, value per acre fell 38 percent.

In the North Central area, value per acre fell 18 percent between 1918-20 and 1937-40. Since yield per acre was maintained, this decline was caused by falling prices. In the Mid-Southern area, values fell most compared to other areas. Between the periods under consideration they fell 44 percent. Both decreased prices and decreased yields contributed to this decline.

In the six Northeastern States, combined values fell 36 percent between 1918-20 and 1937-40, compared with an average United States decline of 33 percent. Since yields were generally maintained in these States, the decline was caused primarily by sharply falling prices. In the lower Northeastern States, however, yield declines occurred as well as falling prices, and values were more severely affected than for the area as a whole. Between 1918-20 and 1937-40 Maryland values fell 53 percent and Virginia values fell 51 percent. Delaware values fell 43 percent. On the other hand, maintained yields held values in the upper Northeastern States at higher levels. Pennsylvania values fell only 20 percent between 1918-20 and 1937-40 while New Jersey values fell 29 percent and New York values 34 percent.

13/ Prices were high in the period 1918-20 in sharp contrast with 1937-40. If a period such as 1924-30 were used for comparison with 1937-40, the percentage decrease would have been less. In this case, 7 percent instead of 33 percent.

THE PROSPECT FOR TOMATO PRODUCTION

Prospective Demand and Prices

Higher levels of commercial-tomato consumption and prices occasioned by rising demand may be expected in the next decade as a result of (1) improving business conditions, at least as long as the defense program lasts; (2) increasing population; (3) shifts in dietary habits arising from a wider knowledge of the value of vegetables in the diet and from the influence on diet of modern modes of living; and (4) new uses. An additional source of demand has come from the use of processed tomatoes in the army ration and from Lend-Lease exports. These factors may be offset in particular seasons to some extent by (1) the developments of the war and the resultant effect on the business situation and export outlet; and (2) increased stress on the importance of home gardening. This last factor will tend to increase the consumption of tomatoes but will also tend to decrease the demand for the commercial crop.

As tomatoes differed from many other agricultural commodities in that, until current Lease-Lend operation occurred, practically no governmental loan, crop adjustment, or storage plan was in effect, prices were a result of the usual competitive market conditions. The improvement of these conditions and the Lend Lease program should bring higher prices for the years immediately ahead[14/]. Costs will probably rise somewhat and offset in part at least, some of the beneficial effects of the price increase to growers.

Over the longer period, higher levels of fresh-tomato consumption are probable because fresh tomatoes are used in many kinds of salads and sandwiches which consumers may want in increasing quantities. This trend probably will result largely from increased production, particularly of winter tomatoes.

The use of tomato preparations, like soup and juice, will probably also continue to increase during the next decade. Further shifts in the dietary habits of large masses of urban population and the tendency to increase the use of prepared foods will contribute to this increase. However, the sharp increase in juice utilization that has taken place in the past decade may not be expected to continue because of the leveling off of the innovation features and because of the increasing competition of grapefruit, orange, pineapple, and other juices. As yet tomatoes do not lend themselves to quick-freezing. Although new uses may be found for them, continued use in directions already established is probable at higher levels in the next decade. Supplies have sufficient elasticity to result in higher levels of consumption unless short crops should come because of weather conditions.

14/ In addition, the United States does not depend on foreign markets for demand for tomatoes. Although the curtailed export market for many agricultural products has severely reduced demand for them, this has not been true of tomatoes. Rather, a shift from a net import to a net export basis for canned tomato preparations as a result of the present war has increased the demand for domestic tomatoes.

Of importance in the long run, particularly for winter fresh tomatoes, is the rising production trend. There is much land that could be used for further increases of tomato production if prices rose to high levels. Many farmers, having lost a substantial part of the market outlet for their products because of the war, could turn to tomato production. No shortage price could exist for long unless transportation facilities were impaired. And, although costs may rise in the short run, they may tend to decline in the long run because of increased production efficiency. Despite the rise of prices that may occur in the next few years, tomato prices, particularly for the winter crop, may eventually be at a lower level as a result of increased supplies and greater production efficiency, other things being equal. Changes in other price factors could alter this prospect

Tomatoes and the War

The demand for tomatoes probably will remain at high levels for the duration of the defense program and the present war. In World War I the demand for tomatoes, particularly processing tomatoes, increased greatly. But the demand for processing tomatoes decreased considerably in the post war years. The demand for fresh tomatoes did not fluctuate nearly so much.

Unlike many other agricultural products, fresh tomatoes have not figured significantly in the United States trade with Europe. In the 1940-41 fiscal year, the United States exported 26 million pounds of fresh tomatoes, worth almost a million dollars. But most of these tomatoes were for trade in this hemisphere, primarily with Canada. Imports of fresh tomatoes amounted to 132 million pounds in the fiscal year 1940-41 and they were valued at 3.4 million dollars. But they came mostly from Mexico and Cuba. The present war affects fresh tomatoes only by increasing business activity and therefore demand in the domestic market. But further defense developments might mean that fresh tomatoes grown in surplus winter-producing areas would be unfavorably affected because of difficulties that might arise in securing transportation facilities. Fresh and processing tomatoes that are moved by boat may be affected by a ship shortage.

The curtailment which the war has caused in the importation of canned-tomato preparations has increased the demand for domestic processing tomatoes. Before the war, Italy shipped large quantities of tomato preparations to the Western Hemisphere. The United States alone imported 70 million pounds of canned whole tomatoes which were valued at about 3 million dollars in the fiscal year 1938-39. Practically all came from Italy. These imports have now been cut off. To manufacture the equivalent, approximately 75,000 tons of processing tomatoes would be required. In addition, imports of canned tomato paste and sauce from Italy, which have approximated 10 million pounds in recent years, have also been curtailed. To manufacture an equal quantity of paste and sauce, about 37,000 tons of processing tomatoes would be required. Omitting other imported tomato products, an estimated 112,000 tons of processing tomatoes would be needed to fill the gap left by these curtailed imports. This amounts to more than 4 percent of United States production in 1941. Thus, for the duration of the war, apparently a large market has been opened to domestic producers because of curtailed imports of Italian tomato products. It will probably be taken over largely by California producers, who grow a tomato similar to the Italian variety.

Not only has demand for domestic processing tomatoes increased because of decreased imports, but the export of United States tomato preparations has also increased. The United States has secured part of the foreign markets that Italy formerly supplied. And the Allies have required large quantities of canned tomato preparations. For the fiscal year 1940-41, compared with 1938-39, exports of canned tomatoes increased from 2 million pounds to 22 million pounds, and exports of tomato paste and puree increased from 4 million pounds to 6 million pounds.

The Lend-Lease Act has increased shipments abroad. In April 1941, the Secretary of Agriculture announced a program to expand the production of the canned tomato pack 50 percent over the 1940 pack by June 30, 1942 15/. These tomatoes were to be used to meet the demand under the Lend-Lease Act and for distribution by the American Red Cross. They were also to be used for the school-lunch program, for relief, and for other purposes. A similar program may be instituted for 1942-43.

In addition, the requirements of the larger United States Army and Navy, including selectees, has increased demand. In 1941 according to the National Defense Commission the total armed forces of the United States probably required about 2,275,852 cases of 24 No. 2 cans of tomatoes or 8 percent of the total pack in 1940 (No. 10 cans packed 6 to a case have been converted to No. 2 cans packed 24 to a case). Juice requirements probably amounted to about 821,381 cases of 24 No. 2 cans or 5 percent of the 1940 pack. These figures do not represent the increased needs of the armed forces but the total needs.

Tomatoes, in fresh and canned form, figure prominently in army diets. The army garrison ration prescribes 2 ounces of canned tomatoes per day per soldier, or 45 pounds per year 16/. No direct allowance is made for fresh tomatoes although they may be substituted for canned tomatoes at the rate of 4 ounces of fresh tomatoes per soldier per day for each 2 ounces of canned tomatoes. Average yearly per capita consumption for the urban population in the United States is about 16.6 pounds of fresh tomatoes and 9.1 pounds of canned whole tomatoes, tomato juice and pulp 17/. Assuming that under ordinary conditions half of the army ration would be fresh and half canned, the army would have a yearly per capita consumption of 45 pounds of fresh tomatoes and 22.5 pounds of canned tomatoes. This would be almost three times civilian consumption for fresh tomatoes and more than twice the civilian consumption of the three principal canned tomato products. However, requirements for selectees and other additions to the armed forces has not increased total demand greatly because they represent only a small part of the population.

But adding the increased consumer demand arising from the defense program to other demand factors associated with the present conflict, it is quite reasonable to expect a sustained demand for tomatoes at high levels for the duration of the defense program and the war.

15/ To meet the needs of this program, an increase of about 35 percent over the 1940 planted acreage of processing tomatoes would be required. Price increases of $2.75 to $3.00 per ton were recommended for those farmers who increased their tomato acreages. No deductions were to be made from AAA payments for increased acreages used to grow tomatoes. Crop reports as of October 1941 indicated an increase of only 11 percent in planted acreage and 13 percent in production compared with 1940.

16/ Wide deviations from this figure are possible, depending on local garrison conditions.

17/ It should be noted that this figure includes smaller consumption units, that is - women and children - while the army figure is for adult males only.

Prospective Trends by Areas

Compared with other areas, the North Central area appears to be in the best position to furnish the increased supplies of processing tomatoes that will be needed for the duration of the defense program. Costs are relatively low there, and the production trend is sharply upward.

The prospect for California processing production also appears particularly bright for the next few years. Aside from other factors, California is adapted to provide substitutes for the curtailed imports of Italian tomato products. However, some difficulties may be encountered in securing shipping facilities.

The Mid-Southern area will also increase its production. It is in the nature of a marginal area benefiting considerably from price and demand increases. Also, other alternatives are in many cases poor and labor problems are not acute in the area. The Utah-Colorado area may also increase production for similar reasons.

Although the Northeastern area is adapted to the production of processing tomatoes, the defense program has resulted in a problem of labor supply. Other problems are in the offing such as securing adequate supplies of production goods like fertilizer, upon which Northeastern production is rather dependent. Although these factors and relatively high costs may limit the extent of a production increase in the Northeast, a moderate increase of production will probably take place

Increased fresh-tomato supplies that will be needed during the defense program will probably be obtained in much the same way as they were before the defense program began. The same local areas will supply Northern markets in the summer. In the winter, supplies will arrive from the South. However, impaired transportation facilities may curtail the supply of some winter tomatoes, particularly those moved by boat from distant places like California, Florida and Cuba. This may result in an increased demand for substitutes like processed tomatoes.

Although tomato production in each area will probably be favorably affected for the duration of the defense program, certain factors affecting production over a longer period may be noted.

The Northern Pacific area may continue to supply increasing quantities of fresh and processing tomatoes for the expanding population of its local and Western markets. This increase is favored by low transportation costs to these markets and by high yields. Processing production may supply markets at great distances, but expansion of fresh production for surplus shipment to distant areas is improbable because this is a summer-producing area.

California is able to produce tomatoes in all seasons and for all uses. High quality and high yields favor production there. Distance from many large markets is a limiting factor, but distant fresh shipments are made in the winter when local supplies are not available in most areas. Specialized and quality processed products also have a demand in distant markets. In California, itself, local markets have provided an increasing demand because population has increased greatly. Over a long period, increased processing production in the Northeastern and North Central areas and in localities that are near to prime markets may provide increased competition.

Market outlets in nearby and western areas now absorb most of the fresh and processing production in the Utah-Colorado area. But some nearby population is failing, and the producing season there is during the summer when most other areas are able to supply their own fresh-tomato needs. Processing tomatoes, moreover, must contend with the low costs and proximity to prime markets of the Northeastern and North Central areas. Prices for both the processing and fresh crops are relatively low. Thus expansion in the Utah-Colorado area is likely to be limited to local needs, and these will probably not be increased greatly.

The Southern area produces fresh tomatoes in winter for Northern markets when only California, Cuba, and Mexico can compete. In the past few decades improved transportation and high prices for the winter crop have prompted a great expansion of production. Continued high prices may encourage further expansion and eventually lead to lower prices. Texas production has increased phenomenally and has competed particularly with the Florida crop. Imports from Cuba and Mexico may increase somewhat. Very few tomatoes are produced for processing in the Southern area. Although some expansion of processing production for local use may occur, no great expansion is likely.

Over the long period, the Mid-Southern area appears to have a less promising prospect compared to other producing areas. However, alternative opportunities, in many cases, are poor and production may continue for this reason. Its yields are comparatively low, and many of its markets are quite distant. Population in some nearby areas has decreased. In addition, Mid-Southern fresh tomatoes have been subject to the increased competition of forced tomatoes in the Northern areas. Formerly, the Mid-Southern area had a greater advantage because it could market its fresh crop earlier than the North and later than the South. But many Northern producers have advanced their marketing season, and spring production in nearby Texas has increased considerably. Furthermore, the production of processing tomatoes in the Mid-Southern area has been affected by increased production in the Northeastern and North Central areas, which probably produce at an advantage because they are close to large markets and have land of higher grade. Thus, although production may increase considerably in the short run, it may not be expected to expand much in the long run; and markets may be generally confined to nearby areas.

The North Central area has good yields, relatively low costs, and many nearby prime market outlets. These advantages favor production but the established commercial sections may be affected by the trend to decentralized production in smaller new localities near large markets. And any increase of fresh production, as in all summer-producing areas, must be mostly limited to supplying nearby areas. On the other hand, processing production is favorably situated to furnish both local and surplus supplies. The demand for these processed tomatoes may be adversely affected by increased supplies of winter tomatoes and of processing tomatoes grown in other areas, but the North Central area appears to be in a position to withstand competition.

The Northeastern States may also experience increased competition. The trend to decentralization of production will be important in curtailing markets for its established producing areas. The demand for processing tomatoes may be lessened by the increased supplies of winter fresh tomatoes at lower prices. The increased production, too, of processing tomatoes in the North Central area, in California, and in the Northeast itself may cause lower prices and perhaps eventually lead to a decline of production in the Northeast.

Moreover, although the effect on Northeastern fresh-tomato prices of increased fresh production in the winter may be discounted, the increased production of fresh tomatoes in the Northeastern area itself and in other adjacent summer-producing areas have been important in causing lower prices. However, the price decline for Northeastern fresh tomatoes has probably run a good part of its course in recent years.

Compared with other similar areas, the Northeastern area has factors tending to favor production. It has relatively good yields and high prices. In addition, prime markets are near. Thus, although costs are high, as compared with those of many other summer-producing areas, it appears to be favorably situated for tomato production.

Competition and Northeastern Prices

Northeastern fresh-tomato prices remained relatively high until the last decade. They fell sharply in 1931-33 and recovered only moderately in recent years What forces have caused this decline in the last decade? Is it the result of increased competition from other areas, especially from the South and West, which have so considerably expanded their production in the past three decades? Or is it the result of other forces?

Increased supplies at a given time and place usually result in lower prices, all other things being equal. But it must be observed that the Southern and California areas produce most of their tomatoes at different times than the Northeast and for different markets. Under these circumstances, the direct competitive effect of the two groups of producers upon each other is slight. For example, January production in southern Florida does not compete directly with August production in Pennsylvania. Moreover, summer markets are largely localized. The cost of shipping a lug of tomatoes to the Northeast from other areas in summer, in most cases, would be more than the price received at destination.

It has been contended by some that increased production at different times or in different areas has had an indirect effect on Northeastern prices by causing a saturation of the market.

Saturation of the market may be divided into two phases, consumer saturation and regional saturation. It is argued that fresh tomatoes which have been marketed in early months affect the demand for tomatoes in other months by "getting the jump" on consumption. Consumer demand may be less after continued consumption of tomatoes in winter months. If tomatoes came to the market in summer only, they would be new to the taste, and demand might be greater than if they were marketed the year round. Thus, it is maintained that increased winter production has caused the summer demand curve to shift downwards, or even to have become less elastic and thus to have depressed summer prices.

Another type of market saturation, may have been caused by increased fresh production in distant areas in the summer season. This increased production may have affected Northeastern prices in that it has narrowed the larger geographical marketing area for Northeastern producers. The areas which have increased production are nearer to some markets than the Northeastern areas are, and they have the advantage of lower transportation costs. However, since most Northeastern tomatoes are produced primarily for large local markets, any displacement of Northeastern tomatoes in more distant markets is only of secondary importance.

It may be noted that supplies from the Mid-Southern and Southern areas overlap for a short time the Northern crops. However, in general, other areas have not taken over any considerable part of the fresh tomato market in the Northeast from Northeastern producers because they do not have a comparative cost advantage over Northeastern producers. In most cases, they simply ship into the Northeast when local supplies are scarce. When local supplies are available in volume, shipments from other areas practically cease.

It is because of the seasonality of fresh tomato production that a comparison of production trends in the Southern and California areas with the production trends of the Northeastern States does not in itself show the true competitive situation; it tends to overestimate the extent of increased competition from the California and Southern areas 18/. Changes of production in all areas have had some influence on price. But it is probable that increased fresh production in the Northeast itself has been more important than increased fresh production in other areas in causing lower Northeastern fresh-tomato prices. Other main causes of the price decline in Northeastern States may be found in general business conditions and in the competition of other summer vegetables.

Although the competitive effect of increased winter-tomato production on the prices of summer fresh tomatoes in the Northeast has been slight, the increase of winter fresh production may have adversely affected the demand for processing tomatoes. The greater availability of fresh tomatoes in the winter has no doubt curtailed to some extent the demand for canned tomatoes in these months. Processing tomatoes are produced to a large extent in the Northeast, and in this way Northeastern production has come into competition with winter Southern production.

However, a more important source of competition to Northeastern producers of processing tomatoes has been the greatly increased processing production in the North Central area, in California, and in small scattered sections located in all areas. Canned tomatoes do not encounter many seasonal obstacles to marketing, such as the climatic obstacles that fresh tomatoes encounter. Canned tomatoes produced in an area are easily stored and transported at comparatively low cost. Northeastern producers have been faced with increasing competition from California specialty and quality production and from increased production in relatively nearby North Central areas. However, many new uses for processing tomatoes have been developed to absorb increased production, and production decreases in the Midsouthern area have partially offset increases in other areas.

18/ Production in areas outside five Northeastern States has shown an inverse relationship to prices received within these States since 1923. Superficially, this fact might suggest a causal relationship. More likely, however, the relationship between production and prices here is coincidental. A similar correlation between production within these States and prices has existed, with more grounds on which to base a causal relationship.

Although lower prices for processing tomatoes in Northeastern States may be partially traceable to increased competition from other areas, other factors such as increased production within the Northeast itself and lower consumer purchasing power have been very influential. The Northeast, in any case, has a decided advantage in its proximity to prime markets. Its processing prices still rank highest in the country.

Supplementary tables

Table 17. - Farm sales value of principal commercial truck crops grown for market and for processing, United States, 1939 1/

Crop	For market	For processing	Total
	1,000 dollars	1,000 dollars	1,000 dollars
Artichokes	2,020	-	2,020
Asparagus	9,215	3,466	12,681
Beans (green lima)	1,440	1,899	3,339
Beans (snap)	14,747	3,978	18,725
Beets	834	566	1,400
Cabbage	15,469	1,113	16,582
Cantaloupes	14,183	-	14,183
Carrots	9,439	-	9,439
Cauliflower	5,784	-	5,784
Celery	18,156	-	18,156
Corn, sweet	1,144	5,556	6,700
Cucumbers	4,355	2,344	6,699
Eggplant	712	-	712
Kale	138	-	138
Lettuce	30,968	-	30,968
Onions	15,319	-	15,319
Peas, green	10,798	9,361	20,159
Peppers, green	4,311	-	4,311
Pimientos	-	653	653
Spinach	4,692	687	5,379
Tomatoes	33,911	24,274	58,185
Watermelons	7,730	-	7,730
Total	205,365	53,897	259,262

1/ Excluding farm sales value of market-garden vegetables.

Compiled from reports of the Agricultural Marketing Service.

Table 18.- Farm sales value of principal commercial truck crops grown for market and for processing in 12 Northeastern States, 1939 1/

Crop and utilization	Connecticut	Delaware	Maine	Maryland	Massachusetts	New Hampshire	New Jersey	New York	Pennsylvania	Rhode Island	West Virginia	Vermont	Total
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Asparagus, for market 2/		130		317	349		2,842		547				4,185
Beans - green lima		387		184			680						1,251
For market				96			256						352
For processing		387		88			424	3/	3/				899
Beans - snap		48	103	818			822	1,104	623				3,518
For market		4		181			822	584	488				2,079
For processing		44	103	637	3/	3/	3/	520	135		3/	3/	1,439
Beets							259	312	115				686
For market							255		115				370
For processing		3/	3/	3/			4	312	3/				316
Cabbage, for market and kraut				192			731	3,595	1,455				5,973
Cantaloupes, for market		188		518			376						1,082
Carrots, for market 2/							312	618	160				1,090
Cauliflower, for market							489	2,176					2,665
Celery, for market							774	1,019	397				2,190
Corn - sweet		13	339	483		6	1,144	469	206			26	2,686
For market							1,144						1,144
For processing		13	339	483		6	3/	469	206			26	1,542
Cucumbers		72		288	38		287	428					1,113
For market		72		227			287	273					859
For processing	3/	3/	3/	61	38		3/	155	3/				254
Eggplant, for market							110						110
Lettuce, for market							472	888	39				1,399
Onions, for market					359		370	4,297	64				5,090
Peas - green		46	204	509			108	1,532	157				2,556
For market				7			108	517					632
For processing		46	204	502			3/	1,015	157				1,924
Peppers - green, for market							539						539
Spinach				247			413		474				1,134
For market 2/				112			413		474				999
For processing				135									135
Tomatoes		468		3,035			4,746	3,393	2,301				13,943
For market		12		379			1,530	1,368	362				3,651
For processing	3/	456		2,656			3,216	2,025	1,939		3/		10,292
Watermelons, for market		110		150			95						355
Total for market excluding cabbage		516		1,987	708		11,194	11,740	2,646				28,791
Total for processing, excluding kraut		946	646	4,562	38	6	3,644	4,496	2,437			26	16,801
Total for market and processing 4/		1,462	646	6,741	746	6	15,569	19,831	6,538			26	51,565

1/ Exclusive of market-garden vegetables and small quantities of processing vegetables.

2/ Includes the sales value of indeterminate quantities used for processing.

3/ Sales value for the processing crop not available.

4/ Including sales value of cabbage.

Compiled from reports of the Agricultural Marketing Service.

Table 19. - Utilization of the commercial tomato crop for processing as canned tomatoes, tomato pulp, tomato juice and other uses: Pack, tons of tomatoes used for pack and percentage of total production, 1921-41

Marketing season beginning August first	Canned			Pulp			Juice			Other uses		Total production for processing
	Pack	Tomatoes used for pack	Percentage of total production	Pack	Tomatoes used for pack	Percentage of total production	Pack	Tomatoes used for pack	Percentage of total production	Tomatoes used for pack	Percentage of total production	
	1,000 cases 1/	Tons	Percent	1,000 cases 1/	Tons	Percent	1,000 cases 1/	Tons	Percent	Tons	Percent	Tons
1921-22	6,857	205,712	45.0	-	-	-	-	-	-	251,188	55.0	456,900
1922-23	19,695	590,856	49.3	-	-	-	-	-	-	608,344	50.7	1,199,200
1923-24	25,045	751,358	64.5	2,667	70,556	6.0	-	-	-	343,386	29.5	1,165,300
1924-25	21,370	641,106	53.9	2,276	60,212	5.0	-	-	-	488,882	41.1	1,190,200
1925-26	33,747	1,012,420	55.9	3,614	95,608	5.3	-	-	-	701,172	38.8	1,809,200
1926-27	16,140	484,205	48.5	1,728	45,714	4.6	-	-	-	468,681	46.9	998,600
1927-28	22,425	672,757	56.3	3,078	81,429	6.8	-	-	-	441,714	36.9	1,195,900
1928-29	14,575	437,254	43.8	2,000	52,910	5.3	-	-	-	507,036	50.9	997,200
1929-30	24,146	724,387	47.2	3,737	98,862	6.4	231	4,842	.3	706,609	46.1	1,534,700
1930-31	29,015	870,458	49.5	4,490	118,783	6.8	1,674	35,094	2.0	733,165	41.7	1,757,500
1931-32	16,341	490,234	50.2	1,817	48,068	4.9	4,720	98,951	10.1	339,147	34.8	976,400
1932-33	20,130	603,906	50.4	2,300	60,846	5.1	5,559	116,540	9.7	418,008	34.8	1,199,300
1933-34	20,461	613,836	56.8	2,800	74,074	6.8	4,478	93,878	8.7	299,512	27.7	1,081,300
1934-35	22,376	671,286	47.1	3,259	86,216	6.0	6,154	129,014	9.1	539,184	37.8	1,425,700
1935-36	26,985	809,558	47.6	3,656	98,719	5.7	11,615	243,501	14.3	550,442	32.4	1,700,200
1936-37	24,209	726,277	36.5	4,267	112,883	5.7	16,470	345,283	17.4	803,057	40.4	1,987,500
1937-38	26,076	782,287	40.6	3,746	99,100	5.1	16,880	353,878	18.4	691,035	35.9	1,926,300
1938-39	22,960	688,806	39.5	2,790	73,809	4.2	11,184	234,465	13.5	745,520	42.8	1,742,600
1939-40	24,209	726,277	36.3	2,726	72,116	3.6	13,605	285,220	14.3	916,287	45.8	1,999,900
1940-41 2/	29,599	888,858	39.1	2,826	74,762	3.3	15,019	314,863	13.8	996,217	43.8	2,274,700

1/ In terms of cases of 24 No. 2 cans.

2/ Preliminary.

Table 20. - Prices 1/ of tomatoes on the New York wholesale market and rail, boat and truck unloads at New York City 2/
8-year averages, 1932-39

Month	Week	Weekly prices: per 6-till carrier (24 qts.)	Monthly unloads 3/	Month	Week	Weekly prices: per 6-till carrier (24 qts.)	Monthly unloads 3/
		Dollars	Rail cars 4/			Dollars	Rail cars 4/
January	1st	1.73		July	1st	1.55	
	2nd	1.84			2nd	1.41	
	3rd	1.87			3rd	1.13	
	4th	1.95	515		4th	0.97	1,208
February	1st	1.85		August	1st	.72	
	2nd	1.88			2nd	.76	
	3rd	1.91			3rd	.62	
	4th	1.97	491		4th	.60	
					5th	.62	1,077
March	1st	1.79		September	1st	.69	
	2nd	2.09			2nd	.83	
	3rd	2.12			3rd	.81	
	4th	2.05			4th	.81	832
	5th	2.14	571				
April	1st	1.95		October	1st	.86	
	2nd	2.09			2nd	.93	
	3rd	2.12			3rd	.97	
	4th	2.01	684		4th	1.29	
					5th	1.30	802
May	1st	1.97		November	1st	1.55	
	2nd	2.20			2nd	2.03	
	3rd	2.19			3rd	2.41	
	4th	2.40			4th	2.26	525
	5th	2.01	918				
June	1st	1.68		December	1st	2.15	
	2nd	1.59			2nd	2.20	
	3rd	1.36			3rd	1.86	
	4th	1.38	1,309		4th	-	483

1/ Data on prices from Department of Agricultural Economics, New Jersey Agricultural Experiment Station.
2/ Truck unloads incomplete particularly in summer months.
3/ Adjusted for Bronx Terminal unloads, 1932-34.
4/ Motor truck and boat unloads in equivalent rail cars.

Table 21. - Weekly 1/ average l.c.l. wholesale fresh tomato prices per lug 2/ (32 pounds) New York City, by source, 1939

Months	Weeks	Florida	Cuba	Texas	Georgia	South Carolina	Mississippi	Tennessee	North Carolina	Maryland	Arkansas	Virginia	Maryland and Virginia	New York	Pennsylvania	California	Mexico
		Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
January	1st	1.68	2.50														
	2nd	1.93	2.16														
	3rd	2.12	2.10														
	4th	1.75	1.71														
February	1st	1.75	2.06														
	2nd	1.80	2.40														
	3rd	1.39	2.00														
	4th	1.46	2.12														
March	1st	1.87	2.49														
	2nd	2.16	3.00														
	3rd	2.00	2.62														
	4th	2.03	2.62														
	5th	2.53	2.76														
April	1st	2.33	2.39														2.35
	2nd	2.23	2.44														
	3rd	2.23	2.07														
	4th	2.14	2.21														2.18
May	1st	1.82	1.88														1.70
	2nd	1.94	-	2.00													
	3rd	1.88	-	2.00													
	4th	1.92	-	1.89		1.75											
June	1st	1.68		2.00	1.90	1.85	-										
	2nd	1.50		1.79	1.44	1.56	0.88										
	3rd			1.95	1.44	1.60	-		1.97								
	4th			1.94	-	1.62	-		1.45								
	5th			1.44		1.47			1.50	1.26	2.18						
July	1st			1.40					1.01	0.83							
	2nd			1.44				1.34	0.84	0.78	1.78			1.00			
	3rd							1.02		0.81				0.68			
	4th									0.61				.87	0.90		
August	1st												0.36	.72	.78		
	2nd												.38	.62	.64		
	3rd												.81	.69	.58		
	4th													.43	.40		
	5th													.45	.40		
September	1st													.59	.64		
	2nd													.52	.64		
	3rd													.51	.59		
	4th													.63	.67		
October	1st													.93	.90	1.31	
	2nd													1.08	1.02	2.02	
	3rd													.74	-	1.84	
	4th													-	-	1.92	
November	1st															1.64	
	2nd															2.16	
	3rd	3.11		2.58												2.58	
	4th	2.28		2.41												2.51	
	5th	2.43		2.30												2.15	
December	1st	2.75		2.60												2.25	
	2nd	2.58		2.21												1.25	3.25
	3rd	2.20		2.75													2.39
	4th	1.54		-													1.88

1/ Overlapping days included in week and month in which greatest number of days occur. Some prices quoted only for part of a week.

2/ Mostly six by seven lugs.

Table 22. - Canner's carry-over of canned tomatoes, 1921-41

Marketing season beginning August 1	Carry-over
	1,000 cases 1/
1921	10,750
1922	4,270
1923	1,700
1924	4,100
1925	2,390
1926	6,490
1927	3,580
1928	5,630
1929	1,700
1930	1,700
1931	5,400
1932	3,380
1933	1,800
1934	870
1935	1,330
1936	1,430
1937	1,907
1938	3,200
1939	2,800
1940	2,200
1941 2/	1,250

1/ In terms of cases of 24 No. 2 cans.

2/ 1941 preliminary.

Table 23. - Index numbers of commercial production of tomatoes for market and for processing and for 17 truck crops for market and 8 truck crops for processing 1918-41

(1924-1929 = 100)

Year	Tomatoes for market	Tomatoes for processing	17 truck crops for market	8 truck crops for processing
1918	65.5	121.6	-	-
1919	66.7	86.3	53.1	71.4
1920	71.8	85.4	67.4	72.6
1921	63.3	35.5	60.9	49.0
1922	88.2	93.1	75.3	78.0
1923	83.2	90.5	71.3	83.3
1924	95.7	92.4	85.8	91.2
1925	105.1	140.5	91.8	125.7
1926	84.2	77.6	95.4	94.1
1927	102.6	82.9	105.2	82.7
1928	99.1	77.4	104.2	92.5
1929	113.2	119.2	117.6	113.8
1930	107.4	136.5	121.2	127.7
1931	105.3	75.8	119.0	89.4
1932	112.3	93.1	123.1	70.8
1933	101.9	84.0	111.8	77.3
1934	131.2	110.7	127.2	95.4
1935	129.5	132.0	124.8	125.7
1936	129.3	154.4	132.1	120.8
1937	133.3	149.6	134.7	142.5
1938	153.6	135.3	144.2	137.0
1939	153.8	155.3	150.5	119.8
1940	149.9	176.7	148.3	147.5
1941 1/	144.1	190.9	145.7	168.6

1/ Preliminary.

Table 24. - Selected price index numbers, 1918-40
(1924-29 = 100)

Year	U.S. prices received by farmers	Wholesale commodities U.S. prices 1/	Seventeen vegetables for fresh market, U.S. farm prices	Eight truck crops for processing, U.S. farm prices	Tomatoes for fresh market, farm prices 2/				Tomatoes for processing, U.S. farm prices	Wholesale prices canned tomatoes Standard New Jersey #3 at New York City 3/	Average retail price of canned tomatoes (#2 cans) 3/
					United States	Fall crop	Early crop	Late crop			
1918	138.0	133.7	-	-	77.1	-	57	123	146.5	148.8	-
1919	145.6	141.1	118.7	116.2	78.6	-	63	114	124.7	136.2	128.6
1920	144.2	157.2	101.0	127.6	84.9	-	66	129	133.5	119.9	117.5
1921	85.4	99.4	115.0	94.2	92.2	81.3	74	144	78.6	96.3	96.0
1922	90.2	98.5	107.8	91.7	102.1	88.8	82	148	85.1	103.0	106.3
1923	97.0	102.4	122.1	101.2	120.3	92.6	103	154	91.4	111.8	102.4
1924	97.7	99.9	105.3	107.8	114.1	88.8	106	121	105.9	99.7	104.8
1925	106.6	105.4	106.0	103.1	108.3	96.4	102	137	99.7	99.4	108.0
1926	99.1	101.8	98.0	97.7	107.3	104.0	130	85	99.2	95.2	96.0
1927	95.0	97.1	92.3	94.9	84.4	94.5	70	80	96.5	99.4	95.2
1928	101.8	98.5	102.9	96.4	94.3	115.3	109	90	95.7	95.2	92.8
1929	99.8	97.0	95.4	100.2	92.2	100.9	83	87	102.8	111.3	103.2
1930	86.1	88.0	86.1	98.5	83.9	91.9	105	92	101.5	99.7	97.6
1931	59.5	74.3	75.4	84.0	57.3	90.0	44	80	79.6	76.4	81.7
1932	44.4	66.0	61.1	65.5	53.6	112.3	86	45	68.0	74.6	73.8
1933	47.8	67.1	65.4	69.4	59.4	82.0	52	56	76.8	79.3	72.2
1934	61.5	76.3	66.7	75.7	63.0	83.6	82	63	81.1	89.7	82.5
1935	73.8	81.5	71.6	77.9	59.4	76.4	66	66	79.1	74.4	81.0
1936	77.9	82.3	75.3	83.9	67.7	78.3	72	69	84.9	71.1	74.6
1937	82.7	87.9	76.0	88.2	67.2	71.8	79	63	88.4	75.7	73.8
1938	64.9	80.0	65.5	81.2	55.7	97.9	50	60	83.7	71.8	69.8
1939	63.6	78.5	69.8	77.0	71.4	93.0	73	66	81.9	68.0	68.2
1940 2/	67.0	80.0	73.8	78.2	64.6	78.3	77	71	79.1	64.7	67.5

1/ Computed from index of wholesale commodity prices, Bureau of Labor Statistics.
2/ 1940 preliminary.
3/ Computed from reports of Bureaum of Labor Statistics.

Table 25. - Index numbers of factory payrolls and per capita urban consumption of fresh and canned tomatoes, tomato juice and pulp, 1919-40

(1924-29 = 100)

Year 1/	Consumption per capita			Payroll index of factory workers 3/
	Fresh tomatoes 2/	Canned tomatoes 2/	Tomato pulp and juice 2/	
1919		80	102	95
1920	101	83	106	114
1921	89	58	36	74
1922	103	93	100	79
1923	91	94	100	100
1924	103	102	86	93
1925	113	128	135	98
1926	86	85	64	101
1927	106	91	112	100
1928	92	85	71	101
1929	107	109	139	107
1930	96	104	212	87
1931	95	77	218	66
1932	104	86	261	45
1933	91	86	241	49
1934	105	90	309	63
1935	112	104	494	72
1936	117	91	665	83
1937	121	93	562	100
1938	119	80	467	76
1939	127	88	568	90
1940	125	104	567	102

1/ Fresh tomatoes year beginning January 1; canned tomatoes and tomato pulp and juice, year beginning August 1.

2/ Preliminary per capita consumption as published in Agricultural Situation, August 1940.

3/ Computed from reports of the Bureau of Labor Statistics. Preliminary.

Table 26. - Monthly and yearly prices per dozen No. 2 cans of standard-grade tomatoes f.o.b. Indiana canneries, 1920-41

Year beginning August 1	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Average
	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.
1920-21	1.238	1.067	0.883	0.842	0.850	0.888	0.950	0.858	0.800	0.850	0.850	0.890	0.914
21-22	1.169	1.125	1.088	1.025	1.075	1.125	1.208	1.238	1.200	1.206	1.200	1.200	1.155
22-23	1.000	.880	.969	.975	1.005	1.025	1.112	1.100	1.091	1.100	1.081	1.059	1.033
23-24	1.050	-	.962	1.100	1.100	1.100	1.050	1.088	1.100	-	1.260	-	1.090
24-25	-	1.150	1.194	1.188	1.217	2.250	-	-	1.200	1.125	1.133	1.200	1.185
25-26	-	.917	.850	.788	.800	.800	.800	.750	.750	.790	.838	.875	.814
26-27	-	.931	.985	.972	.947	.955	.968	.980	.981	.950	.938	.950	.962
27-28	.912	.900	.875	.888	.890	.894	.891	.878	.850	.834	.832	.862	.876
28-29	.838	.885	1.038	1.050	1.050	1.092	1.267	1.300	-	1.300	1.288	-	1.111
29-30	.925	.975	1.012	1.000	1.031	1.050	1.100	1.100	1.100	1.150	-	-	1.044
30-31	.883	.875	.788	.720	.700	.720	.762	.712	.734	.732	.725	.725	.750
31-32	.695	.694	.700	.688	.675	.715	.750	.747	.742	.734	.746	.742	.719
32-33	.631	.600	-	1/ .605	.592	.594	1/ .608	.642	1/ .694	.744	.794	1/ .800	.664
33-34	.750	.775	.803	.789	.775	.850	.938	.988	.940	.913	.887	1/ .833	.853
34-35	.775	.775	.844	.828	.831	.871	.884	.888	.878	.882	.900	.909	.840
35-36	.728	.719	.725	.738	.681	.689	.681	.700	.700	.673	.670	.720	.70
36-37	.760	.740	.735	.720	.700	.735	.750	.732	.750	.770	.760	.730	.74
37-38	.700	.700	.700	.690	.680	.680	.680	.670	.650	.658	.642	.650	.675
38-39	.650	.669	.647	.640	.650	.641	.653	.642	.650	.637	.628	.642	.6458
39-40	.635	.662	.693	.650	.631	.645	.650	.650	.646	.648	.635	.645	.6458
40-41	.650	.644	.648	.644	.614	.628	.644	.625	.672	.733	.779	.78	.67
41-42	.80	.80	-	-	-	-	-	-	-	-	-	-	-

1/ 3-week average.

Taken from Chicago Market Reports by "The Canner".

Table 27. - Conversion factors used for tomatoes in this report

Unit	Approximate net equivalent weight or capacity
Ton	37.74 bushels
Bushel	53 pounds
Lug box	32 pounds
Five-eighths basket	33.3 pounds
Number 2 can of tomatoes	19 ounces
Number 2 can of tomato pulp	19 ounces
Number 2 can of tomato juice	18 ounces
Case of 24 #2 cans of tomatoes	28.5 pounds
Case of 24 #2 cans of tomato pulp	28.5 pounds
Case of 24 #2 cans of tomato juice	27 pounds

Table 28. - Weight of fresh tomatoes required to manufacture one ton of canned tomatoes, tomato pulp, tomato juice, or 25 percent tomato paste

Commodity	Required weight of fresh tomatoes
	Tons
Canned tomatoes	2.11
Tomato pulp	1.86
Tomato juice	1.55
Twenty-five percent tomato paste	7.55

Table 29. - Quantities of tomato products that one ton of fresh tomatoes can be converted into

Commodity	Cases 1/
Canned tomatoes	33.3
Tomato pulp	37.8
Tomato juice	47.7

1/ Cases of 24 #2 cans.

Table 30. - Dimensions and number of packages per carload of market tomatoes 1/

Container, origin, and dimension	Number of packages per carload	
	General range	Usual loading
Arkansas, western lug	600 - 650	600,625, or 650
California, western lug (5-3/4x13½x16-1/8)	600 - 650	630
Colorado, western lug, with cleats (5/8x13½)		651
Florida, 6-basket crate (10x11x22), few shipments	409 - 450	448
Florida, western type lug (6-7/16x13½x16-1/8)	560 - 675	
Florida, 2/3-lug (4-1/8x13½x16-1/8) 20-lbs.	850 - 970	
Georgia, western lug	560 - 595	
Illinois, Sterling lug (4½x11½x18-5/8) 20-lbs.		900
Indiana, baskets (8-qt. splint basket)		1,000
Indiana, 12-qt. climax basket		700
Louisiana, western lug	600 - 690	625 or 650
Maryland, Virginia, western lug	573 - 600	
Mexico, western lug	630 - 840	630
Michigan, 12-qt. climax basket		700
Michigan, ½-bushel basket		774
Michigan, bushel basket		450
Mississippi, western lug	625 - 675	650
Mississippi, 2/3-lug (4-1/8x13½x16) 20 lbs.	850 - 970	
Missouri, western lug		660
Missouri, 12-qt. climax basket (mostly western section)		1,000
New Mexico, western lug	600 - 740	660
New York, western lug	560 - 700	645 (av.)
New York, 12-qt. climax basket	1,035 - 1,216	
Ohio (Marietta section), 12-qt. climax basket	949 - 1,085	984
Ohio (Northern and central sections), 8-qt. splint or corrugated paper basket, 8-lbs. Mostly hothouse. Only few shipped in carloads		3,000
South Carolina, western lug	540 - 575	
Tennessee, western lug		600, 625, or 650
Texas, western lug	600 - 720	625 or 650
Utah	606 - 665	630
Washington, western lug (U.S. destinations)		630
Washington, western lug (Canadian destinations)	750 - 756	
Washington, peach box (4x11½x18), used only for large, ripe, or second grade stock to nearby markets	1,000 - 1,330	1,260

1/ Typical dimensions of the western lug are: 5-3/4x13½x16-1/8, used with or without cleats of various thicknesses.

Table 31.- Areas of production and average production (1929-38) for commercial crop of tomatoes for market.

Group and State	Average production 1929-38	Principal producing sections
	1,000 bushels	
FALL:		
Florida	201	Lee, St. Lucie, Manatee, Dade Counties
Texas	173	Laredo District; Dimmit; Frio, Zavala Counties; Rio Grande Valley
EARLY (1):		
Florida, south	1,608	Dade, Broward, Collier Counties
EARLY (2):		
California, Imperial Valley	263	Imperial Valley
Florida, other	1,011	Manatee, St. Lucie, Palm Beach, Hillsboro Counties
Texas, Lower Rio Grande Valley	900	Lower Rio Grande Valley
SECOND EARLY:		
Georgia	135	Mitchell, Cook, Evans, Tattnall Counties
Louisiana	174	DeSoto, Jackson, Union, West Feliciana, Winn, Lincoln Parishes
Mississippi	1,165	Copiah, Hinds Counties
South Carolina	232	Beaufort, Charleston, Orangeburg, Marlboro Districts
Texas, other	1,928	Brooks, Jim Wells Counties (Falfurrias District.) DeWitt, Lavaca Counties (Yoakum District.)
		Anderson, Bowie, Cherokee, Henderson, Panola, Smith, Van Zandt Counties (East Texas)
INTERMEDIATE:		
Arkansas	204	Drew, Bradley, Ashley, Chicot, Hempstead, Howard, Sevier, Crawford, Benton, Washington Counties
California	888	Los Angeles, Orange, Merced Counties
Illinois, Union County	58	Union County
Maryland	629	Somerset, Worcester, Wicomico, Baltimore, Dorchester Counties
Missouri	510	Newton, Lawrence, Barry, McDonald, Jasper, Jefferson, Christian Counties
New Jersey	2,019	Gloucester, Salem, Burlington, Cumberland Counties
North Carolina	78	Carteret, Bertie, Pender, Scotland Counties
Ohio, Southeast	205	Washington, Meigs Counties
Tennessee	882	Gibson, Crockett Counties
Virginia	400	Northumberland County and Eastern Shore

Continued -

Table 31.- Areas of production and average production (1929-38) for commercial crop of tomatoes for market. (Continued)

Group and State	Average production 1929-38: 1,000 bushels	Principal producing sections
LATE (1):		
California, Northern District	764	Contra Costa, Alameda, Santa Cruz, Monterey Counties
Colorado	415	Denver and Greeley Areas, Arkansas Valley, Pueblo and Crowley Counties
Delaware	27	Sussex County
Illinois, other	187	Whiteside, Lee, Kankakee Counties
Indiana	609	Johnson, Grant, Tipton, Bartholomew, Madison, Knox, Hamilton, Sullivan DeKalb Counties
Iowa	57	Muscatine, Marshalltown and Cedar Rapids areas
Kentucky	192	Louisville Area
Michigan	364	Berrien, Monroe, Macomb, Bay, Oakland, Van Buren Counties
New York	1,224	Chautauqua, Niagara, Orleans, Monroe, Ontario, Wayne, Genesee Counties
Ohio, other	228	Wood, Lucas, Hamilton, Ottawa, Mercer, Lorain, Darke, Auglaize, Defiance, Williams, Van Wert, Franklin, Clermont, Ashtabula, Miami, Montgomery, Lawrence Counties
Oregon	200	Umatilla, Multnomah, Clackamas, Washington, Marion, Lane, Linn, Douglas Counties
Pennsylvania	280	Lancaster, York, Adams, Bucks, Philadelphia, Erie, Crawford Counties
Utah	87	Box Elder, Cache Counties
Washington	323	Yakima, King, Pierce, Benton, Franklin, Walla Walla, Spokane, Garfield, Clark, Snohomish, Skagit Counties
LATE (2):		
California Southern District	964	Ventura, San Luis Obispo, Santa Barbara, Los Angeles, Orange Counties